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Mississippi Agricultural and Mechanical College reports

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Report of the Trustees, President and other Officers of the Agricultural and Mechanical College of Mississippi, from the organization of college to Dec. 1st, 1883

Biennial report of the Trustees, President and other Officers of the Agricultural and Mechanical College of Mississippi, 1884-'85-1890 and 1891

Biennial report of the Trustees, President and other Officers of the Mississippi Agricultural & Mechanical College, 1892 and 1893-<1894-1896>

LLMC 01-490t

BIENNIAL REPORT

OF THE

Trustees, President and Other Officers

OF THE

Agricultural and Mechanical College

OF MISSISSIPPI,

FOR THE YEARS 1886 and 1887.

PULISHED FOR THE INFORMATION OF THE LEGISLATURE AND THE PUBLIC.

JACKSON, MISS.:
R. H. HENRY, STATE PRINTER.

1888.

REPORT OF EXECUTIVE COMMITTEE.

NOVEMBER 25th, 1887.

Hon. Robert Lowry, Governor and ex-Officio President of the Board of Trustees:

We herewith transmit report of the work of the A. and M. College for the years 1886-1887, and, through you, congratulate the people of the State upon the continued progress and marked success of an institution established for industrial education, and so intimately interwoven with the elevation of the industrial classes, and the development of the industrial interests of the State. The entire machinery of college government works without friction. The perfect organization, and harmonious working of all tho different departments, and the excellent spirit of the student body, and the thoroughness of instruction in the class-room, show the College thoroughly equipped for efficient work. Bearing in mind that the College has been in operation only seven years—three of which were necessary to properly equip it and mature a policy—thus leaving only four years of actual organized work, it is gratifying to witness, in so short a time, tangible results in various lines of experimental work. The several industrial departments, including those of the Farm and Horticultural, as they more fully develop each successive year, constitute, more and more, object lessons, which constantly influence student and visitor in favor of a more diversified system of agriculture. The successful experiment, first inaugurated at the College, of the Creamery system, which has now been in operation for the past three years, has, for all time, definitely settled the question of the adaptation of the extreme South for the most profitable system of Dairy Husbandry.

The value of this experiment, not now fully appreciated, can be measured only by the magnitude and importance of this industry in the United States, in connection with the vast advantages of the South in climate, grass, and forage capabilities, and cheap dairy lands, thus enabling a more economic production of dairy goods. Under the inspiration of the demonstrated success of this enterprise, before untested in the Gulf States, numerous creameries are now being established, and put in successful operation, in this, and the States adjoining. These creameries, solving as they do, the problem of how to restore lost fertility to our exhausted fields, and, at the same time, make them the most profitable part of the farm, are but the beginning of others yet to follow, which will be worth millions annually to our section, and contribute, probably, more than all other agencies combined, in drawing immigration southward from the great dairy districts of the United States. Experiments in other industrial lines, though not yet so fully and satisfactorily developed, give promise of results not less gratifying. The enthusiasm of the President, Faculty and Students, with their entire harmony and oneness of purpose, is all that could be desired, and furnish the best guarantee for continued success in the line of industrial education and development, and their reflex influence upon the industrial interests of the State. Yours respectfully,

H. M. STREET,
W. B. MONTGOMERY,
H. A. MINOR,
Executive Committee.

PRESIDENT'S REPORT TO BOARD OF TRUSTEES.

AGRICULTURAL COLLEGE, MISS.,
Nov. 25th, 1887.

To the Hon. Board of Trustees of the Agricultural and Mechanical College of Mississippi:

GENTLEMEN: In compliance with the act of Congress, partially endowing the College, and with the provisions of a State law requiring reports, the following is submitted for the information of the Legislature and for the general public. This is the third biennial report, and is intended to cover the workings of the College for the sessions of 1886 and 1887.

SESSIONS 1886 AND 1887—ATTENDANCE.

The session of 1886 showed the largest number of students in the history of the college, 415 undergraduates and 9 post-graduates. Of this number 188 were in the College classes and 227 in the preparatory department. The graduating class numbered 11.

The session of 1887 had an attendance of 276, including 7 post-graduate students, 174 being in the College classes, and 95 in the preparatory department. The graduating class numbered 16, the largest, so far, since the opening of the College.

The session of 1888, now in progress, has an attendance, so far, of 260 students.

REDUCED APPROPRIATIONS.

The Legislature which met in January, 1886, two years ago, in their wisdom, reduced the appropriation asked for by $5,143, which was that much less than the appropriation made for the two previous sessions. It was therefore necessary to reduce expenses, to come within the limit of the appropriation. This was the more necessary in the session of 1887, as no changes could be made till the close of the session of 1886, in July; as that session, with its large number of students (415), was being conducted on the basis of an appropriation of $32,500 a year, as given for the years 1884 and 1885. The appropriation for the years 1886 and 1887 was $50,000, instead of $65,000 as given for the previous two years.

CHANGES TO COME WITHIN APPROPRIATION.

This necessitated changes, reducing the number of students for the session of 1887. The Board of Trustees decided to limit the attendance in the dormitory to 200, two to each room, instead of three to a room, as in the session of 1886. They decided also to reduce the preparatory department one-half, and receive only such students in this class as could be prepared for the freshman class in one year.

This readjustment caused the College to decline 270 students for the session of 1887, who were registered and anxious to attend before the opening of the College. The same is true for a large number for the session of 1888, now in progress.

STUDENTS FROM OTHER STATES.

No new students from other States have been received since the session of 1885. There are now only three who matriculated in previous sessions and were considered as being entitled to the privileges of the College, by virtue of entrance fee paid. In order not to keep out Mississippi boys by their attendance, the Board of Trustees, in the session of 1886, erected out of the tuition fees which they had paid, by virtue of their coming from other States, a small house for their use and the use of others attending at that time. Only students from Mississippi are now being received in the College.

ATTENDANCE BY COUNTIES—PRO RATA.

The spirit of the law, requiring an equal distribution of attendance by counties, based on the number of educable white boys in the respective counties, has been faithfully observed. In no instance has a student been refused from a county not represented, or having less than its quota, unless he was unprepared to enter the lowest class. Every effort has been made by correspondence and otherwise to have every county represented at the College. Oktibbeha county, in which the College is situated, only has her "pro rata" share of dormitory room, with the other counties, so that the day students from Starkville, who attend the College, do not keep boys from other counties from attending. The privilege of day or class attendance, is allowed at all colleges to students in their vicinity, and no good reason can be seen why these students should be deprived of the education at their doors, especially as the county paid $10,000 towards the College.

CAN'T PROVIDE FOR ALL WHO WANT TO ATTEND.

The record shows that the College has not been able to accommodate all the students from Mississippi who desired to attend, and that many have been turned away, and that the College has had a larger attendance than any other male institution in the State. This shows that it has a strong hold upon the industrial classes, who mainly patronize it.

COLLEGE ESTABLISHED AT DEMAND OF FARMERS.

The College was established mainly at the demand of the farmers of the State, who insisted that the endowment given by the United States "to benefit agriculture and the mechanical arts," should be utilized in a separate College.

The statistics at the College show that over eighty per cent of the students attending the College are the sons of farmers and that the College is mainly patronized by farmers.

ESTABLISHED IN INTEREST OF INDUSTRIAL CLASSES.

Congress intended the colleges established under the provisions of its bounty "to promote the liberal and practical education of the industrial classes." The policy adopted by the Board of Trustees has made the expense so small as to place an education within the reach of young men of very moderate means. The average necessary expense of a student at the College, including board, uniform, coal, books, furniture, washing and medical fee is $125 a session. This amount is reduced somewhat by work done by the students. The practical bearing of this feature is shown by the fact that during the last session 50 students reduced their expenses below $100. It is not seen how education at a College can be made much cheaper.

ORIGIN OF THE COLLEGE.

The College owes its existence originally to the bounty of Congress, which donated public lands or scrip, to the States, "to benefit agriculture and the mechanical arts." The gift was coupled with certain conditions, which can be seen in the law, printed with this report. The scrip netted the State $227,500. This amount can never be diminished, and only the interest can be expended in the support of the colleges. The law allows a certain per cent. to be expended in land, $15,000 has been expended in land for this College, so that the amount now is only $212,150. This is divided between the A. & M. College at Alcorn University and this institution. The amount belonging to this College is now $98,575, which gives an annual support of $4,928 in the way of interest. The rest of the support needed by the College must come in the way of appropriations, made by the Legislature at its biennial sessions.

REQUIREMENTS OF STATE LAW.

The State law establishing the College (printed with this report), and based upon the acceptance of the Federal gift, enumerated among the duties assigned to the Board of Trustees, the following, viz.: "The establishment and maintenance of a first-class institution, at which the youth of the State may acquire a common school education, and a scientific and practical knowledge of agriculture, horticulture, and the mechanic arts, and also the proper growth and care of stock, without, however, excluding other scientific and classical studies, including military tactics." * * * "They shall regulate the course of study, rates of tuition, management of the experimental farm, the manner of performing labor, and the kind of labor to be performed by students, together with the course of discipline necessary to enforce the faithful discharge of the duties of all officers, professors and students."

CONSTRUCTION OF LAW BY LEGISLATURE.

This was the understanding of the Legislature in accepting and complying with the conditions of the gift of the land scrip from the United States; successive legislatures have made liberal appropriations to carry out the conditions, and in providing the necessary plant of buildings, experimental farm, grounds, equipment, apparatus, barns, sheds, machinery, improved implements, necessary to making the College what it was intended to be, a first-class institution, and have provided also for its support from year to year.

VALUE OF COLLEGE PLANT AND PROPERTY.

The plant and property, as recently valued by three disinterested citizens, is now worth $206,986.35. The College has a capacity of from 250 to 300 students, and has had an average enrollment of 300 students, a year, since it opened its doors.

AGRICULTURAL FEATURE FIRST PERFECTED.

The Board of Trustees, in performing their duty, have kept before them the fact that Mississippi is mainly dependent upon her agriculture for her prosperity; and have first made provision for the wants and necessities of the largest class of her citizens, engaged in this great industry. The means at their disposal have been spent mainly in developing the agricultural bias of the College.

READY FOR ESTABLISHMENT OF MECHANICAL FEATURE.

They are now prepared to add the mechanical feature, however, whenever the Legislature provides the necessary means to put up shops for wood and iron work, and supply the necessary machinery. The United States Government is ready to furnish an engineer officer from the navy, to give the necessary instruction when this department of the College is ready for work.

ORGANIZATION, AND INTENTION OF CURRICULUM.

The organization of the College, and arrangement of the Curriculum, has been to familiarize students with the leading objects as set forth in the State law, viz.: to provide for a commom school education, and to educate and direct the minds and tastes of the students to agriculture, horticulture, care and growth of stock, management of farms, manner of performing labor, &c., that the students shall have both a scientific and practical knowledge of such matters. This involves a knowledge of the sciences which underlie agriculture, and necessitates a broad and liberal culture. The education is to be practical, and students must be made familiar with labor, by contact with an experimental farm, and the handling of stock, fruits and vegetables.

COURSE OF INSTRUCTION—CURRICULUM.

There is a single course of study extending over one year preparatory and four years collegiate, with arrangements for a post graduate course. Only ordinary English studies, such as cover a common school course, coupled with the elementary principles of agriculture, are required for students not far enough advanced to enter thefreshman class.

The course is as follows:

COLLEGIATE DEPARTMENT.

FRESHMAN CLASS.

First Term—Algebra, English, Natural Philosophy, Drawing.

Second Term—Algebra, Agriculture, English, Horticulture.

Third Term—Algebra (6 weeks), Geometry (6 weeks), English History, English Etymology, Book Keeping.

Declamation and Composition through entire Session.

SOPHOMORE CLASS.

First Term—Geometry, Elementary Chemistry, Rhetoric, Mechanical Drawing.

Second Term—Geometry (6 weeks), Trigonometry, (6 weeks),Blowpipe Analysis, Rhetoric.

Third Term—Surveying, Agriculture, Chemical Analysis, Preparation and Delivery of Addresses.

JUNIOR CLASS.

First Term—Analytical Geometry and Mechanics, History of English Literature, Free Hand Drawing, Anatomy and Physiology.

Second Term—Mechanics, Veterinary Science, Agricultural Chemistry, Horticulture.

Third Term—Entomology, Military Tactics, Botany, General History.

Addresses prepared in the First Term and delivered in in the Second Term.

SENIOR CLASS.

First Term—Spherical Trigonometry and Astronomy, Chemical Physics, Political Economy, Zoology.

Second Term—Civil Engineering, Agriculture, Geology, General Literature.

Third Term—Meteorology, Botany, Military Science, Constitution of the United States, Moral Science, Criticism.

PREPARATORY DEPARTMENT.

English Grammar, Composition, Arithmetic, Algebra, to Equations of the First Degree, Geography, U. S. History, Agriculture, Penmanship, and Declamation.

TEXT BOOKS—Reed and Kellogg's Graded Lessons in English, Kerl's English Grammar (Common School Ed.) Thomson's Complete Arithmetic, Wentworth's Complete Algebra, Maury's Manual of Geography, Barnes' Brief United States History, Gulley's First Lessons in Agriculture.

FACULTY AND OFFICERS OF THE COLLEGE.

The Faculty and Officers of the College consist of a President, eight Professors for the chairs of Biology, Agriculture, Chemistry and Physics, Horticulture, English, Mathematics, Military Science and Tactics, Preparatory Class and Dairy Husbandry (vacant), four Assistant Professors for the Chairs of English, Mathematics and Chemistry, and Preparatory Class, Two Instructors, a Drawing Teacher, a Writing Master, a Steward and Janitor,Surgeon, and a Secretary, Purchasing Agent, Bookkeeper and Instructor in Bookkeeping, in one person.

SALARIES OF FACULTY AND OFFICERS.

The salaries are, President, $2,500; four Professors, $2,000; one Professor, $1,500; one Professor, $1,000; one Professor, U. S. officer, paid by the United States; this officer is also the Acting Professor of Mathematics and is paid $1,000 by the State: four Assistant Professors, $800 each; Secretary, Purchasing Agent, Instructor, $1,800; two Instructors, $600 each; Writing Master, $400; Hospital Nurse $270; Assistant in Biology, $270; Steward and Janitor, $900; the Surgeon is paid by each student paying him a fee of $5 for the session.

FACULTY NECESSARILY A LARGE ONE.

The Faculty is necessarily a large one to meet the conditions of the law, and provide for the theoretical and practical duties required, in furnishing liberal culture and industrial education, the military feature, etc. These facts should be borne in mind when comparing the College with other inititutions.

DETAILED REPORTS OF FACULTY AND OFFICERS.

With this report, is submitted the detailed reports of the different professors and officers of the College. They are most complete, and fully explain the amount and kind of the work done in the different departments. The distinguishing feature of the College, is that all theoretical instruction has a practical adjunct in way of demonstration, or putting into practice, what is taught. I fully approve of the reports, and invite a careful reading of them.

THE TWO INDUSTRIAL DEPARTMENTS.

It may be well to say something more in detail of these two departments of the College. They instruct the students theoretically in the class-room in agriculture as a science (applying the sciences underlying agriculture, and taught by the other professors), and also practically in the field (with labor), as an art. For details, reference is made to the reports.

These departments are self sustaining. The farm has received no money from the College fund, or the State, for three years, and annually clears a profit, which has been invested in improvement, development and stock, after paying all expenses. The work is considered more experimental and illustrative, than for profit. The main object so far has been, to demonstrate to the students and to the State, that diversified farming, in connection with stock, early vegetables, fruit, etc., is the only, and the best, way of handling our uplands, which have been allowed to run down in fertility, by the cultivation, under the one crop system, mainly of cotton. The College farm (1763 acres), was a type of many farms of this character in the State. The clean cultivation necessary to produce cotton, has used up much of the organic matter in the soil. A judicious handling of such lands, is all that is necessary to make them as remunerative as they ever were. The introduction of diversified farming with stock by the College is to show that this plan soon restores the land, and points out the safe system of raising only such farm crops as cotton and corn, on the most fertile lands, and using the poorer lands as grass or pasture lands for stock. Our climatic conditions in Mississippi are such that we can raise a great diversity of crops, and all that is necessary is to adopt and follow, with more careful methods, a diversified system of farming, rotating in crops, and looking more to the maintenance of the fertility of the soil. This will enable the farmers of the State to continue the cultivation of cotton under more favorable conditions, and at the same time introduce greater diversity in our farming, for which the State is peculiarly adapted. In demonstration of this fact, reference is made to the report of the Secretary, and also to that of the Professor of Agriculture, where it is shown that the farm-lands of the College have steadily increased in value, and in the last four years (since the farm was really equipped), *have become* $14,625 *more valuable than they were.* This valuation has been given by different committees of appraisement of disinterested citizens, as showing results of the system pursued; so that the Board of Trustees adhere to their policy, and use all money made on the farm in paying expenses, and in its further development and improvement, as the best possible investment.

The farm department was well equipped by 1884, and is now giving good and encouraging results, without expense to the State; and every year will give better results. Several hundred acres of good land are now in the best condition, from careful ditching and handling, for cropping, and more is being cleared and put in similar state.

The uplands, used as pasture lands, are improving rapidly in fertility and capacity for carrying stock.

DEPARTMENT OF HORTICULTURE.

The Horticultural Department has not been as well equipt as was the Farm Department, and has had to struggle against the disadvantages of a poor start. It has done a great deal in showing the practicability and profit of raising early fruits and vegetables on a few acres. The fact, however, is apparent, that horticulture cannot be made a success except on the intensive system, and on very rich soil. This is shown in our own State at Crystal Springs and other localities. This industry is becoming a most important one in Mississippi, and is demanding recognition and assistance from the College. The interest has grown fifty per cent a year for the last two years. The State Horticultural Society in 1885, memorialized the Board of Trustees of the College to place this department on as favorable a basis as the farm department. The Board by resolution promised to comply with the request of the society, so soon as they had the means to do so. The lack of funds has prevented them from doing so to the present time. I deem it essential that this department be better equipt, when it will give better returns. I consider that it will require about $5,000 to be spent in this direction, in supplying deficiencies and in enriching the soil, so it will be suitable for the purpose for which it is to be used. In other words, it requires this amount of capital to accomplish desirable results.

STATE EXHIBIT AT NEW ORLEANS.

The law providing for the State exhibit at the New Orleans Exposition, provided that what was left at the close should be the property of the College. The Exposition covered two years and closed in 1886. It was found that most of the exhibit was of a perishable character, and at the break-up only about two car loads, consisting mainly of tables, cases, glassware, and such like, was all that was worth moving to the College. The wood exhibit, which was considered very valuable, was found to be rotten, and very little was gotten out of it. The College, however, by exchange and collection from other exhibits, accumulated much that was valuable to the institution.

FARMER'S INSTITUTES AND OUTSIDE WORK.

The Board of Trustees have for several years set aside $500, and directed the Faculty to hold "Farmer's Institutes" with the farmers in the different parts of the State, and to otherwise assist the farming interest of the State. There has been great demand for this kind of work, more than the Faculty could do, or than the money set aside for this purpose would warrant. At these gatherings of the farmers the Faculty or individual members discussed such topics as the farmers themselves selected, and thought would most benefit there respective localities. These meetings have been productive of good, in inculcating a more careful system of farming. The correspondence of the members of the Faculty on agricultural topics, and in supplying desired information, is a very considerable part of the duties to be performed by the College. The institution is really every year becoming more and more an official bureau of information to the farming interests of the State.

SANITARY CONDITION.—HOSPITAL.

The sanitary condition of the College is almost perfect. It is located on a dividing ridge, and is drained in every direction. The health of the students has been excellent for years, and no death has occurred among them since January 10th, 1884. A $5 fee contributed each year by each student secures competent medical attention, and the employment of a skilled nurse at the hospital insures every attention to sick students.

EXPENSE OF BOARD.

Board is furnished at the mess hall at actual cost; purchases and settlements are made monthly. The average expense of board during the last year was $7.70 a month, and included lights, fuel for the hospital, luxuries for the sick, and the expense of policing the college and domitory buildings.

OFFICIAL VISIT FROM COL. BRECKENRIDGE, U. S. A.

In December, 1886, the College was visited by Col. J. C. Breckenridge, U. S. A., to inspect the military department, and the arms and accoutrements furnished the College by the United States Government. The object of the visit was to see if the College authorities were conforming to the conditions imposed by the Federal law, in detailing an officer of the army as professor of military science and tactics. It is believed he was satisfied that this College was giving the officer all needed facilities for the performance of his duties.

LABOR REQUIRED OF STUDENTS.

This is the most difficult feature connected with the College. The large attendance for several years, has made it impossible to furnish as much labor as was desired. Although the labor is theoretically compulsory, still the amount furnished the students is limited necessarily by the funds in hand to pay for this labor, and in the ability of the industrial departments to find daily labor for so large a body of students. Much of the labor furnished gives no return whatever, and has been furnished because the College, by law, is required to make the students labor. Both the Board of Trustees and Faculty are a unit as to the necessity and importance of this feature. The only limit with them is the cost. It would be best to cause every student to work a certain time every day, if there was sufficient money to pay them, and enough labor at hand to employ them. The Board of Trustees, in a recent report made to the Governor, express themselves as follows: "We deem it essential that this work be rigorously exacted except in cases of sickness, and we respectfully urge that the Legislature hereafter make a specific appropriation of say $7,000 per each year for students' labor, to be used for no other purpose. This labor is not very valuable to the College, but we regard it as of supreme importance that the Board of Trustees be enabled to exact it. As the object of the College is to make intelligent and progressive farmers, we deem it essential that each student should be inured to farm labor." Unless the horticultural feature of the College is considerably enlarged, it will be impossible to furnish very much labor. The raising of early fruits and vegetables can be made very remunerative, and will furnish a good deal of labor for students. The stock feature is supplying a good deal of labor, and it is highly educational. During the last two sessions a good many young men (8 or 10) have been sent from the College to take charge of stock farms, and conduct creameries; and as far as I can learn, have given general satisfaction.

TEXT-BOOK—ELEMENTS OF AGRICULTURE.

The Board of Trustees directed the President to have prepared a suitable text book to meet the wants of students in the preparatory class, and also suitable to be introduced into the common schools of the State. The book was intended to meet the wants of the large class who can never receive a college education, or be thorough in the sciences underlying agriculture. Prof. Gully has prepared a text book of about one hundred pages, admirably arranged in chapters and divisions, and devoid of scientific and technical phrases. It has been prepared from the standpoint of a farmer, rather than from that of a scientist. It has been found that the preparatory students at the College take more interest in this study and make better progress than in the ordinary common school studies, such as arithmetic, geography, history, grammar, and those taught in the common school curriculum. It is in my judgment the best book of the kind I have ever seen, and should be introduced into the common schools, and find a way into the home of all farmers.

LIBRARY.

Our Library is totally inadequate for the wants of the College, at its present stage of progress. Only $2,000 have been expended so far, to purchase scientific books of reference, and for general reading. The only additions to the Library are the reports sent from the different departments of government at Washington. An appropriation of $5,000 is needed to supply this most pressing want.

STATE PAPERS SENT TO COLLEGE.

The reading room of the College is kept supplied with many of the papers published in the State, which are contributed free, for the use of the Faculty and students. The receipt of these papers is a source of great comfort and pleasure to the students, who are kept posted in all home matters.

MAGAZINES—PERIODICALS.

About $130 is spent annually to purchase the leading magazines and periodicals, and also the leading agricultural and scientific journals, suited to the technical character of the College.

FINANCIAL STATEMENT.—RECEIPTS AND EXPENDITURES.

The report of the Secretary will give all the details of receipts and expenditures during the two years since the last report made to the Legislature in the Fall of 1885. When that report was made (November 28), there was a balance in the State treasury just sufficient to meet all expenses of the College to January 1, 1886. The same condition of facts exists now, and all the money is accounted for since the last report was made, and there is now in the treasury just sufficient to meet all expenses of the College to January 1, 1888. The statement shows the following summary of receipts and expenditures from November 28, 1885, to November 20, 1887, viz.:

Since November 28, 1885, there has been received from State Treasurer:

From Legislative appropriations	$50,783 71
From interest on land scrip	9,857 50
Total	$60,641 21

This amount has been expended for salaries, students' labor, repairs, building and incidentals.

Since November 28, 1885:

Received from maticulation fees, tuition and subscription	$1,567 32

This amount expended for incidentals.

Received from the chemical fees of the students in laboratory work, fees for analysis of fertilizers, etc	$3,160 68

This has been expended in replacing chemicals and glassware used by students, and for analysis of fertilizers, and for apparatus and equipment.

Received from Farm Department	$9,845 18
This has been expended to meet expenses of farm, and for further development.	
Received from Horticultural Department	$2,745 14
This has been expended to meet expenses of department, and for further development.	
The actual Legislative appropriation for the two years just closing, was:	
From State appropriation	$50,000 00
From interest on land scrip	9,857 50
Total	$59,857 50

This will pay all the ordinary expenses of the College as indicated, viz.: Salaries, student labor, repairs of buildings and incidentals. Not a cent of this amount will go to the industrial departments, which are self-sustaining. These departments, as already stated, pay their expenses, and any surplus, in further development. The expense of conducting a college of this character is as great as that of any university or similar college having equally as large an attendance, so far as the usual ordinary expenses, and it will require as much money to meet these expenses from the State.

APPRAISEMENT OF COLLEGE PROPERTY.

Attention is called to the appraisement of the College property by Messrs. J. H. Odeneal ot Hinds county, J. R. Heggie, of Carroll county, and W. S. Harrison, of Oktibbeha county. The inventory fixes the value at $206,986.35. They raise the value of the farm lands $5,702 over what it was two years ago. The pure bred stock is valued lower, owing to depreciation in value of pure breds. They also put lower values on the orchards and nursery stock.

ITEMIZED ESTIMATE.

An itemized estimate accompanies this report, showing what amount will be necessary to support the College, on the present basis, for the next two years, viz $65,000.

In addition $5,000 is asked to buy books for the Library.

$5,000 is asked to put the Horticultural Department in better shape.

$1 000 to buy apparatus for illustrating the principles of mechanics.

AGRICULTURAL EXPERIMENT STATION AT AG'L COLLEGES.

In the recent address of the Board of Trustees to the Governor of the State, is the following: "It will be remembered that the last Congress donated $15,000 per annum to each State, for the establishment of an agricultural experiment station in connection with the Agricultural College of the State. In States having two colleges the fund is to be divided, unless the Legislature shall direct that all of it go to one. As most of this money must necessarily be employed in paying scientific men to aid in making these experiments, and as these experiments are in the highest degree educational, we respectfully urge that the equipment of this College in scientific professors, and the necessary apparatus for experiments, and also in skilled labor, would make it to the best interest of the State, that the whole fund should be expended here. A careful investigation of that subject authorizes us to say that a division of the fund would about make the whole of it useless." It will be necessary for the Legislature to pass an act accepting the donation on the terms proposed in the law, and authorizing its expenditure by the Board of Trustees. The attention of the Legislature is called to the federal law, and the necessity of their action in the premises. It is possible the necessary funds may be appropriated by Congress this winter, and steps have already been taken to inaugurate the work. It is well, however, to bear in mind that none of this money can be spent in the College work, but the law makes the station a department of the College, for experimental work only, and the funds cannot be directed for College work or expenses.

FAITHFUL WORK OF FACULTY AND OFFICERS.

It is my pleasure to testify to the earnestness, thoroughness and loyalty of the Faculty and other officers of the College. No institution ever had a more laborious, painstaking and industrious Faculty. They have but one object, which is to serve the College faithfully and do all in their power to make the institution a success. There has been entire unanimity and agreement in the Faculty for the last two years.

CHARACTER OF STUDENTS IN ATTENDANCE.

The body of students as usual show a most commendable spirit. Their conduct has been most excellent. They have been earnest in their studies and work, and show a high appreciation of the advantages they enjoy at such an institution. The relations between Faculty and students are most pleasant. The students are readily amenable to discipline, and they show a most excellent spirit in complying with the rules and regulations of the College.

CONCLUSION.

Referring to the success which has attended the Institution since its organization; to the continued large attendance of students, and to the inability of the College to provide for all applicants who desire to attend; to the useful work it is doing in inaugurating a better system of agriculture, and its ability to enlarge its usefulness, with its increased experience; also to the substantial assistance which it has just received from Congress, in increasing its sphere of work by the establishmant of an agricultural experiment station supported by the United States, the College looks with pride to its past hard earned success, and trusts that it is but a stepping stone to the future: With these facts it confidently relies on the same generous and liberal support it has heretofore received from the Legislature.

Respectfully submitted,
S. D. LEE, President.

ATTENDANCE BY COUNTIES.

COUNTIES.	Session 1885–'86.	Session 1886–'87.	Session 1887–'88.	COUNTIES.	Session 1885–'86.	Session 1886–'87.	Session 1887–'88.
Adams	3	3	5	Lincoln	7	6	1
Alcorn	1	3	3	Lowndes	17	12	14
Amite	4	2	...	Madison	15	12	9
Attala	13	5	4	Marion	...	...	...
Benton	...	...	1	Marshall	15	12	5
Bolivar	4	2	4	Montgomery	2	1	2
Calhoun	...	2	1	Monroe	12	10	13
Carroll	5	3	7	Neshoba	1	...	3
Chickasaw	...	1	2	Newton	4	2	2
Choctaw	1	2	6	Noxubee	9	8	7
Claiborne	7	2	2	Oktibbeha	57	44	38
Clarke	11	10	5	Panola	1	3	7
Clay	11	3	1	Perry	...	...	1
Coahoma	5	3	3	Pike	5	...	1
Copiah	29	10	8	Pontotoc	3	4	4
Covington	..	...	...	Prentiss	2	...	2
De Soto	3	3	3	Quitman	...	...	...
Franklin	4	...	...	Rankin	3	1	2
Greene	1	...	...	Scott	10	4	...
Grenada	8	2	5	Sharkey	1	1	...
Hancock	...	1	...	Simpson	...	...	...
Harrison	1	1	3	Smith	2	3	3
Hinds	20	7	6	Sunflower	...	...	...
Holmes	15	14	11	Tallahatchie	1	5	3
Issaquena	...	1	1	Tate	5	5	2
Itawamba	...	1	3	Tippah	1	2	...
Jackson	6	1	2	Tishomingo	...	...	...
Jasper	2	2	...	Tunica	...	...	...
Jefferson	14	3	1	Union	...	...	...
Jones	...	...	...	Webster	2	2	1
Kemper	6	4	9	Warren	3	2	7
Lafayette	6	7	4	Washington	5	1	2
Lauderdale	8	5	7	Wilkinson	2	3	3
Lawrence	3	2	...	Wayne	2	...	2
Leake	3	1	...	Winston	2	5	...
Lee	2	3	3	Yalobusha	7	3	1
Leflore	...	...	2	Yazoo	4	2	3

SALARIES

Of Officerers and Prefessors of the A. & M. College of Mississippi.

President	$2,500
Professor of Biology	2,000
“ “ Agriculture	2,000
“ “ Chemistry	2,000
“ “ English	2,000
“ “ Preparatory Department	1,500
Acting Professor of Horticulture	1,000
“ “ “ Mathematics	1,000
Ass’t “ “ Chemistry	800
“ “ “ Mathematics	800
“ “ “ English	800
“ “ “ Preparatory Dep’t	800
Instructor in Preparatory Department	600
“ “ “ “	600
“ “ Drawing	400
“ “ Writing	400
Assistant to Professor of Biology	270
Secretary	1,800
Steward	900
Hospital Nurse	270
Total	$22,440

ESTIMATE OF WANTS AND NEEDS

Of the A. & M. College of Mississippi for the Years 1888-1889.

For the year 1888.

For Salaries	$22.440
“ Student Labor	5,500
“ Repairs on building	1,750
“ Insurance on building	1,260
“ Traveling expenses of Trustees	230
“ “ “ of Faculty to Farmers Institutes	500
“ Ministers for conducting religious exercises	180
“ Commencement expenses	170
“ Coal and chalk for recitation rooms	300

For Postage and stationery	400
" Printing catalogue, reports, blanks	400
Total	$33,130

For the year 1889.

For Salaries	$22,440
" Student labor	5,500
" Repairs on building	1,750
" Traveling expenses of Trustees	230
" Traveling expenses of Faculty to Farmers Institutes	500
" Ministers conducting religious exercises	180
" Commencement expenses	170
" Coal and chalk for recitation rooms	300
" Postage and stationery	400
" Printing catalogue, reports and blanks	400
Total	$31,870
Total for the two years	65,000
Average per annum	32,500

REPORT OF SECRETARY.

AGRICULTURAL COLLEGE, MISS.,
November 25th, 1887.

President S. D. Lee:

SIR:—Herewith is submitted my report as Secretary of the College, embracing statement showing all receipts and disbursements from November 28th, 1885, to November 20th, 1887, under the head of "General Statement," and also separate statements of the Farm and Horticultural Departments. The Legislative appropriation has been expended for salaries, student labor, repairs of buildings, equipment and incidentals. A critical examination of the accounts and vouchers will show that we have practiced the very closest economy. When the extent of the buildings is considered, the amount expended for repairs, $1,605.10, would seem reasonable, and has been barely sufficient to keep the buildings in ordinary condition. One thousand dollars of the amount was paid for repainting the frame buildings in 1886. This was deemed necessary for their protection. We have not spent more for equipment than was absolutely necessary for proper teaching facilities, ($849.50.)

Under the head of incidentals is embraced coal and chalk for section rooms, traveling expenses of Trustees, traveling expenses of Faculty when attending Farmers' Institutes, commencement expenses, pay of ministers for conducting religious exercises, etc. This amount cannot be reduced. We have purchased only such things as were absolutely necessary, and in quantities as they were needed. The total amount expended at this College for the two years will compare favorably with that of any institution of the kind in the United States, and on the present basis of attendance of students the institution cannot be sustained on a less amount.

The amount expended for student labor has been $9,379.34. The students have not been given as much labor as they wished, for want of means and the difficulty of finding labor for them. Many deserving young men have been assisted by this labor in securing an education, who, without such assistance, would have been unable to attend.

The Industrial Departments, (Farm and Horticultural), have been self-sustaining for the past two years.

Receipts from Farm Department have been......	$9,845 18
Expenditures..	9,797 85
Receipts from Horticultural Department..........	2,745 14
Expenditures..	2,707 96

The policy of the Board in expending the income from these departments in their expenses and further equipment and development has been carried out. The Farm Department was not well equipped until 1884. The increase in the value of the farm lands, as shown by the appraisements made by Messrs. W. L. Hemingway, Mat. Mahorner and M. L. Jenkins in 1883, Messrs. M. L. Jenkins and A. H. French in 1885, and Messrs. John H. Odeneal, J. R. Heggie and W. S. Harrison in 1887, was 1883–1885 $8,922.50, and 1886–1887 $5,702.50, making total increased value of land in the four years $14,625.00. The increase in value of property, as shown by inventory, since 1885 is $3,584.51. The difference between this amount and the increase in the value of the land is due to the pure bred stock being inventoried at a lower rate per head than in 1885, owing to the general depreciation in pure bred stock in the country, and also to a lower valuation put upon the orchards and nursery stock. With the accounts will be found itemized statements with vouchers attached, all of which have been examined and approved by the Finance Committee. We have still with State Treasurer $2,333.55, which, with the interest on land scrip due January 1, 1888, will be sufficient to pay all expenses to that date. Attached to statements will also be found inventory of property as appraised by the Committee appointed for that purpose, viz: Messrs. John H. Odeneal, J. R. Heggie and W. S. Harrison. This inventory shows a total valuation of $206,986.35, being an increase of $3,584.51 in the two years.

SUMMARY.

Since November 28th, 1885, we have received		
From State Treasurer from appropriations	$50,783	71
" " " " interest on land scrip	9,857	50
Total	60,641	21
This amount has been expended for salaries, student labor, building, equipment, repairs and incidentals.		
Since November 28, 1885, our income has been:		
From matriculation and tuition fees and subscriptions	$ 1,567	32
Expended for incidentals.		
From fees for chemical analyses	2,133	00
" students for chemicals and glassware	1,027	68
Expended for apparatus and chemicals for analyses and for students.		
From farm department (see statement)	9,845	18
Expended for expenses, further equipment and development.		
From Horticultural Department (see statement)	2,745	'14
Expended for expenses, further equipment and development.		
Total income	$17,318	32

All of which is respectfully submitted,

T. F. WATSON, Sec'y.

GENERAL STATEMENT.

Of Receipts and Disbursements A. & M. College, from Nov. 28th, 1885, to Nov. 20th, 1887.

RECEIPTS.

From State Treasurer:		
" Appropriations	$50,783 71	
" Interest on land scrip	9,857 50	
		$60,641 21
" Matriculation and tuition fees	1,472 02	
" Subscriptions from citizens	95 30	
		1,567 32
" Fee for chemical analysis	2,133 00	
" Fees from student for chemicals and glassware	1,027 68	
		3,160 68
" Farm produce:		
" Beef Cattle	3,222 33	
" Pure bred cattle	1,883 35	
" Milk	2,255 20	
" Butter	1,159 62	
" Field crops	1,174 68	
" Mules	150 00	
		9,845 18
" Horticultural:		
" Vegatebles	1,095 95	
" Fruits	664 16	
" Nursery stock	795 03	
" Mules	190 00	
		2,745 14
Balance cash on hand Nov, 28, 1885		768 57
		$78,728 11

DISBURSEMENTS.

For Salaries		$44,883 03
" Students labor		9,379 34
" Building and equipment	$ 2,089 50	
" Repairs on building	1,605 10	
" Incidentals	3,009 15	

For Printing	675 88	
“ Postage and stationery	506 06	
		7,985 69
“ Apparatus and chemicals	2,958 73	
“ Fees to State chemist	674 90	
		3,633 63
“ Books and periodicals for Library		261 70
Farm expense equip ment and develop ment.		
“ Labor	4,414 70	
“ Beef cattle	1,243 76	
“ Implements	1,101 83	
“ Feed	900 14	
“ Pure bred cattle	632 17	
“ Buildings	354 56	
“ Fertilizer	156 80	
“ Fencing	139 00	
“ Seeds	124 25	
“ Repairs	94 18	
“ Postage and stationery	46 46	
“ Rent	590 00	
		9,797 85
Horticultural, Equipment and Development.		
“ Feed	244 45	
“ Seeds	283 57	
“ Fertilizers	71 52	
“ Labor	1,004 75	
“ Implements	394 45	
“ Nursery stock	631 46	
“ Postage and stationery	33 47	
“ Permanent improvements	44 29	
		2,707 96
“ Dairy experiments		33 59
Balance of cash on hand		45 32
		$78728 11

STATEMENT

Of Farm Account from Nov. 28, 1885, *to Nov.* 20, 1887.

RECEIPTS.

By balance printed report, 1885	$29 17	
“ sale beef cattle	3,222 33	
“ sale pure bred cattle	1,883 35	
“ sale milk	2,255 20	
“ sale butter	1,159 62	
“ sale field crops	1,174 68	
“ sale mules	150 00	
		$9,874 35

DISBURSEMENTS.

To amount paid for labor	$4,414 70	
“ amount paid for beef cattle	1,243 76	
“ amount paid for pure bred cattle	632 17	
“ amount paid for implements	1,101 83	
“ amount paid for feed	900 14	
“ amount paid for rent	590 00	
“ amount paid for buildings	354 56	
“ amount paid for fertilizers	156 80	
“ amount paid for fencing	139 00	
“ amount paid for seeds	124 25	
“ amount paid for repairs	94 18	
“ amount paid for postage and stationery	46 46	
To balance	76 50	
		$9,874 35

STATEMENT

Of Horticultural Account from November 28, 1885, *to November* 20, 1887.

RECEIPTS.

By balance printed report, 1885	$36 47	
“ sale vegetables	1,095 95	
“ sale nursery stock	795 03	
“ sale fruit	664 16	
“ sale mules	190 00	
		$2,781 61

DISBURSEMENTS.

To amount paid for feed	$244 45	
" amount paid for seeds	283 57	
" amount paid for fertilizers	71 52	
" amount paid for labor	1,004 75	
" amount paid for implements	394 45	
" amount paid for nursery stock	631 46	
" amount paid for buildings	44 29	
" amount paid for postage and stationery	33 47	
To balance	73 65	
		$2,781 61

INVENTORY

Of College Property Appraised Tuesday and Wednesday, November 15th and 16th, 1887.

College buildings	$101,050 00
" land	47,712 50
" miscellaneous	4,924 33
" hospital	518 62
" library	2,315 66
" museum	3,161 14
" stewards	2,372 10
" chemical	5,883 70
Farm buildings	10,195 00
" machinery	2,530 00
" implements	1,028 00
" produce	5,221 00
" stock	13,160 00
" hand tools	104 30
" Miscellaneous—creamery	3,000 00
Horticultural buildings	640 00
" implements	220 00
" stock	300 00
" growing crops	150 00
" produce	225 00
" orchards and nursery stock	1,725 00
" small fruits	550 00
Grand total	$206,986 35

STATEMENT

Of the Appraising Committee.

A. and M. College, Miss.,
November 15th, 1887.

In the performance of our duty as appraisers of the property of the A. and M. College, we have had opportunity to see much of the practical workings of the institution, and we think it is in accordance with the proprieties of the case for us to express to the Legislature and people of the State our high appreciation of the great success of this industrial school. All the departments, so far as their circumstances will allow, are in admirable working order. The farm has been put in good tillable condition, and its products are not only gratifying, but surprising in their abundance.

In the dairy and creamery department we have the inauguration of a new industry which is destined, in the very near future, to add immensely to the prosperity of our State.

The horticultural department has had from the beginning to struggle against the disadvantages of meagre appropriations. Nevertheless, it is doing noble service in demonstrating the practicability and profit of truck and fruit farming.

In this wide range of diversified farming the students can indulge their tastes as to the particular line of industry they may choose, and by the practical instruction given in connection with the labor of their own hands, they may easily acquire the grandest of all arts—the art of being independent. The school has been wisely built, and if properly sustained it is fraught with untold blessings to our State.

We call special attention to the fact that the horticultural department is too meagrely sustained. This is the department in which students could be most readily employed, but it is crippled for want of funds.

The cattle on the farm afford about the only manurial supply and they belong to the farm department, so that the garden, where fertilizers are absolutely indispensable, is too much left without this real element of success. Beyond question this department needs most of all to be strengthened at this time.

We respectfully call attention to the fact that a mechanical department was contemplated in the establishment of the school. But little has, as yet, been done in this direction. Students should be taught the use of tools. Many of them, probably, would prefer to learn mechanics. The College is not complete without the establishment of this lepartment.

In conclusion, we most earnestly urge upon the Legislature to make such appropriations as may be necessary not only to keep the property in first-class repair, and the institution in good working order, but as far as possible to increase the facilities of the school to accommodate the many young men and boys throughout the State who desire the benefits of its training, but are now debarred for want of room and teaching force.

J. R. HEGGIE,
J. H. ODENEAL,
W. S. HARRISON.

DEPARTMENT OF BIOLOGY.

Third Biennial Report.

To President S. D. Lee:

SIR: The work in this department is distributed as follows:

JUNIOR CLASS.

First term is given to anatomy, physiology and hygiene with recitations, lectures, discussions, plates, skeletons, manikins, models, artificial and natural preparations and dissections.

Second term is devoted to veterinary science, lectures, discussions, use of skeletons, artificial and natural preparations of parts, post mortem examinations as often as practical, examinations of cases, reading and discussing, letters reporting cases and asking for treatment. Hundreds of cases annually of swine, sheep,goats,cattle, horses, mules and other animals are treated under the direction of this department, embracing a great variety of medical, surgical, obstetric and other classes of cases, together with preventive measures and general sanitation of live stock. Students are eager to learn all they can on these subjects.

Third term is wholly taken up with botany. As in all other studies every thing is practical. Not only books, works, other men's ideas or imaginings, but things are studied, investigated, handled, dissected every day by the students themselves.

SENIOR CLASS.

In this class the work is of the same practical character as in the preceding class.

First term is occupied with zoology; second with geology, and third with botany continued and finished. To illustrate, during the current term all the members of this class spend from one to three hours daily dissecting animals, studying comparative anatomy, physiology, embryology, making written notes of their investigations daily and writing out full reports of work completed, illustrated with drawings and preparations of parts or of the whole animal in some instances. Then everything is arranged according to its natural, scientific relations into the proper class, order, genus, species, and a brief history of its habits, distribution, beneficial or injurious influences on the interests of the human race. A similar course is pursued with the other studies. Thus a love and a habit of original, practical investigations are acquired by the student. He becomes self-reliant, must examine, test, scrutinize, know for himself and take less at second hand.

Only one term for each of these important sciences cannot make experts of students, when in other colleges years are devoted to some of them. But the effort is made in the limited time allowed here to lay a foundation solid and broad enough for the student after leaving the college, upon which to build a goodly superstructure. It is gratifying to know that many former students are continuing at their homes the studies commenced here, and that they are making their attainments useful to their neighbors.

The number of students now working in this department is forty-five, and all desire that the time in some of the studies could be prolonged to several terms.

Respectfully submitted,
Nov. 18th, 1887. D. L. PHARES.

FARM DEPARTMENT.

S. D. Lee, President:

SIR:—The following report of the work of this department for 1886 and 1887 to November 15th, is respectfully submitted.

The work embraces instruction in the class-room and in the field, student labor and general work of the farm.

My own duties include:—

First.—Course of lectures on the theory and practice of general agriculture to the senior, sophomore, and freshman classes of each year, and instruction of resident graduates and special students.

Second.—Supervision of student labor on the farm.

Third.—General management of the farm,

Fourth.—Attending Farmers' institutes and other meetings of like nature.

Fifth.—Correspondence in refence to the College, and to a great variety of topics of interest to farmers and others.

A considerable portion of my time has been occupied in preparing plans for farm buildings, silos, suggesting outfits of machinery and implements. I have also been called upon to visit places and submit plans of drainage, arrangement of buildings, and to examine location for creameries and submit plans for construction and outfit.

The work of this department is attracting attention throughout this and other States, and the reports of the results of our work are copied by papers all over the country.

THE COLLEGE FARM.

The tract of land under the control of the farm department, embraces some 1,650 acres lying in an irregular, narrow body, varying from one-fourth to three-fourths of a mile in width, and four and one-half miles long. The farm is divided into two parts by a strip of land half-a-mile wide running across the place, which is owned by other parties.

About 150 acres are covered with timber; the remainder is branch cotton and rolling uplands; the former amounting to about 400 acres on the entire tract and mostly contained in a narrow strip, running lengthwise through the center of the farm. The College and farm buildings are located one mile from one end, and about in the centre of the farm. The peculiar shape of the farm makes any convenient arrangement of the fields almost impossible, and adds very largely to the cost of improving the land, draining, working and harvesting crops, and calls for a large amount of fencing to enable us to make the land available for cropping and pasture.

Previous to being occupied by the College, about two-thirds of the bottom land had been partially cleared and cropped, but at the time purchase was made nearly all the land was lying out, the owners being unable to find returns at any price. The uplands were badly scored by washing, and the ditches in the bottom had been allowed to fill and the land to grow up in brush.

The work of the first and second, year after the opening of the College, was expended on land adjacent to the buildings to protect the soil from further washing. The fields were fenced, hill-sides ditched, planted in corn, oats and peas, followed by grass, and finally turned into pastures, with the exception of what is used for growing ensilage crops near the barn.

Commencing in 1883, it has been the policy of the department to drain and fit the bottom land for cropping, and turn the uplands into pasture for stock.

As there were no fences or ditches on the farm, some twenty-six miles of fence have been built, and half as many miles of ditches opened to make all of the land available for cropping and pasture.

The greater part of the labor on the farm has been expended in improving the lands, and has as yet made no returns except adding to the value of the property. The result of this work is becoming apparent in the crops, and the noticeable change that has been made in the condition of the larger portion of the uplands, now affording a large amount of grazing and effectually protected from washing. We now have two hundred and fifty (250) acres of bottom land cleared up, well drained, and broken thoroughly and fitted for high cultivation.

The plan, or system, that has been adopted on the College farm embraces stock-growing and diversified farming. This is believed to be the most practicable and profitable system that can be followed on farms of like character over a considerable portion of the State. The main feature of the farm is the stock, and from the sales of the cattle, beef and milk, the farm department expects to derive the principal part of its income.

All crops grown are consumed on the farm except the cotton crop and such crops as may be grown to produce new varieties of seed for sale. From $400 to $600 is expended each year in cotton seed and meal for feeding purposes, and in concentrated fertilizers. This plan enables the farm to carry a larger number of stock than could be done otherwise, and at the same time increases the amount of manure made on the place.

The cropping will be confined to the best land, and the poorer land will be used for pasture until the growth of grass, clover, etc., has added sufficient organic matter to the soil to make it profitable to fertilize and to crop.

STATEMENT

Of Labor in Farm Department from November 15th, 1885, to November 15th, 1886.

	DAYS' WORK.		
	Students.	Men.	Mules.
Experiments	181.2	......	......
Wood	....	39.5	72.5
Ice	8.9	19.5	13.0
Corn	62.4	163.2	387.5
Fence	117.2	54.0	26.0
Buildings	85.3	49.5	57.5
Permanent improvement	1117.2	338.7	481.7
Office	93.0	......	......
Tools and machinery	96.5	.5	1.0
Stock	1130.7	336.1	99.0
Ensilage crop	16.9	209.5	204.5
Creamery	491.7	......	300.0
Hay and forage	24.7	336.5	323.0
Road work	5.6	5.5	9.0
Oats	16.7	87.5	74.5
Cotton	89.1	197.8	132.5
Total	3537.1	1837.8	2181.7

CROP FOR 1886.

		Yield.
75	acres of corn	1,800 bushels.
30	acres of cotton	14½ bales.
60	acres of oats	1,350 bushels.
30	acres of ensilage	200 tons.
20	acres of corn fodder	70 "
50	acres of clover and hay	90 "
40	acres of peas and forage	80 "
1¼	acres of sugar cane	160 gal. M.

Forty acres of corn yielded at the rate of 35 bushels to the acre; 20 acres at the rate of 20 bushels to the acre. Fifteen acres of the land planted was plowed up and sowed to sorghum and fed off with cattle late in the fall.

The low yield of the 20 acres and loss of the fifteen acres was due to the excessive rainfall of June and July, the land not being sufficiently drained to enable us to work the crop.

STATEMENT OF LABOR

From November 15th, 1885, to November 15th, 1887,

FARM DEPARTMENT.

	STUDENTS.	MEN.	MULES.
Cotton	20.6	45.6	75.0
Stock	1105.5	389.7	84.5
Fence	196.3	118.5	35.0
Wood		49.0	93.0
Corn	124.3	455.1	453.0
Experiments	147.6		
Office	194.5		
Tools and Machinery	104.5	4.0	3.0
Permanent Improvements, clearing, ditching, etc.	472.9	224.3	180.0
Buildings	161.5	62.4	59.0
Ensilage	88.9	122.3	82.7
Creamery	201.4	9.0	34.0
Hay and Forage	33.2	1107.0	92.1
Road Work	40.2	25.5	32.5
College	44.3	24.0	12.0
Oats	12.4	159.1	189.0
	2948.1	2795.5	1424.8

CROPS OF 1887.

60 acres of	corn	2300	bushels,
50 "	oats	1350	"
30 "	ensilage	210	tons
30 "	corn fodder	120	"
75 "	clover and other hay	150	"
15 "	forage corn and sorgham	40	"
7 "	cotton	2½	bales.

The small field in cotton promised in June to made a large yield, but the cotton worms nearly destroyed the entire crop notwithstanding the use of poison.

The regular working force of the farm embraces:

One foreman at	$50 00	per month
One stockman at	25 00	" "
Five hands at	15 00	" "

No supplies are furnished.

Day hands are employed during vacation and when needed, and some ditching and chopping on the most distant part of the farm is done by job work.

The greater part of the cultivated land on the farm is from one to two and one-half miles from the College building, too far off to employ student labor working but two or three hours of the day.

A tract of land of 160 acres commencing one-half mile from the buildings, and one-half of a mile wide, not owned by the College, separates the southern part of the farm from the part on which the buildings stant.

The southern part embraces the best land on the place and the greater part of the land under cultivation. The 160 acre tract referred to belongs to minor heirs, therefore could not be bought. It was rented by the College up to December, 1886, until the lower farm could be fitted for cultivation and for pasture. The entire farm is now under fence and is utalized either for cultivation or for pasture.

Student labor is made use of as far as possible, (see classification of labor 1886-87), but as the work of growing forage crops and the general cultivation of the farm is largely done by teams and machinery, regular laborers working all the time are necessary.

The expenditures and receipts for the years 1886-7, ending November 15th, were as follows:

STATEMENT

Of Farm Department No. 15*th*, 1886, *to Nov.* 15*th*, 1887.

DEBITS

Amount paid laborers	4,414	70
Beef Cattle	1,243	76
Implements	1,101	83
Feed—Cotton Seed	900	14
Fine Cattle	632	17
Rent	590	00
Building	354	56
Fertilizer	156	80
Fencing	139	00

Seed	124 25	
Repairs	94 18	
Postage and stationery	46 46	
To balance account	76 50	
		9,874 35

CREDITS.

From sale beef cattle	3,222 33	
" " milk	2,255 20	
" " pure bred	1,883 35	
" " butter	1,159 62	
" " field crop	1,174 68	
" " Mules	1290 1	
Balance for 1885	50 70	
		9,874 35

EXPERIMENT WORK.

The work in this line during the two years has been mostly of a general character and largely preliminary, not as yet productive in results that can be tabulated.

The stock-carrying capacity of our large pasture has increased at the rate of about 25 per cent. per annum for the past three years, the natural growth of the Japan clover (*Lespedeza Striata*), furnishing the greater part of the grazing.

The improvement is due to the root growth of the plants and to the droppings of the cattle while grazing, no additional fertilizing material having been added. The most rapid improvement of soil has occurred where the cattle have been fed part of the year when running on the pasture. A small field of some ten acres, near the barn, considered as poor soil as any on this farm, that yielded but ten bushels of corn per acre in 1881 with an application of 200 pounds of cotton-seed meal per acre; and at that time was sparsely covered with broom-sedge and lespedeza, has been used for night pasture for cows and for calves that were fed on cotton-seed during a part of the season until the present year. The stock-carrying capacity of this field has increased not less than 50 per cent. each year, the field carrying not less than an average of two head per acre eight months of 1886.

A portion of the field was planted to corn, oats, and ensilage corn the present year without fertilizer, and produced at the rate of 35 bushels of oats and 45 of corn to the acre.

With Prof. Myers of the chemical department I have commenced a series of investigations to learn what effect the lespideza, red clover, cow pea, Bermuda grass, and some other plants have on our impoverished soils, and how they may be best utilized. We have washed out the roots on small, carefully measured areas of land and the roots are being analyzed by the chemical department, to determine the amount of fertilizing material contained. (See Report of Chemical Department.)

I am not prepared, as yet, to make any statement in regard to results, but our work so far seems to show that turning land on which lespedeza will grow, into pasture and feeding the stock on cotton-seed, while running on the pasture ,is the most economical and certain method of improving our worn, red clay soils.

In fertilizer experiments we have started some 25 one-tenth acre plots, applying a fertilizer made of different proportions of nitrogen, phosphates and potash, to determine which one of these materials, or what combination of them will make the best return on our soil. The plots have been started in a rotation of crops, embracing cotton, corn, clover and oats. The same fertilizer will be applied to each plot for several years, and the effect on the different crops carefully noted. In our work on this farm no one thing has impressed visitors more than the effect of good drainage on the growth of crops.

STOCK.

The College herd of cattle has increased from 282 head to 364 head since Nov. 15th, 1875 ; the number of pure bred cattle from 23 head to 37, grade Jersey females from 45 to 102, grade Holstein females from 16 to 63. The above figures refer to cattle owned by the farm Nov. 15th, 1885, and Nov. 15th, 1887, and do not include cattle sold.

The development in this feature of the farm is shown in the increased receipts from the stock, greater (see next page) number of cattle on the place, and larger proportions of pure bred and grade animals.

1884 and 1885.		
Amount paid for cattle		$2,021 05
" received for pure bred cattle	$965 00	
" received for beef cattle	2,247 74	
" received for milk	2,293 37	
" received for butter	581 96	
Net returns from cattle		4,067 02
	$6,088 07	$6,088 07
1886 and 1887.		
Amount paid for cattle		$1,875 93
" received for pure bred cattle	$1,883 35	
" received for beef cattle	3,222 33	
" received for milk	2,255 20	
" received for butter	1,159 62	
Net returns from cattle		6,644 57
	$8,520 50	$8,520 50

Increase in total number of cattle on farm from November 15, 1885, to November 15, 1887	82 head.
Increase in number of pure bred cattle	14 head.
Increase in number of grade females, Jerseys and Holsteins	104 head.

THE CREAMERY.

The College creamery has been in constant operation during the two years, while another creamery four miles distant has also been at work since June, 1886—and it has received milk from nearly one-half of our former patrons owing to its being nearer to their farms.

Milk is received from patrons morning and night, the cream removed by the cream separator and the skimmed milk returned to them; the cream is made into butter, or sold, and the patrons charged four and five cents per pound, varying with the cost of making, for working up the milk, shipping and selling.

Total amount of money paid to patrons for their cream, $12,044.69. Amount paid each month to patrons for butter and cream delivered in milk, after deducting cost of making and selling is given in the following statement, prepared by the Secretary of the College:

	Price paid per pound for butter.	Price paid per pound for cream.
1885—November	23.45 cents.	
December	24.9 "	
1886—January	26.68 "	
February	24.93 "	11.2 cents.
March	24.62 "	12.5 "
April	24.63 "	11. "
May	23.5 "	10.5 "
June	17. "	10. "
July	13. "	8. "
August	18. "	8. "
September	20. "	10. "
October	25. "	12. "
November	22. "	11. "
December	23. "	11. "
1887—January	24. "	11. "
February	25. "	11. "
March	25. "	8.5 "
April	24. "	8.5 "
May	20. "	8.5 "
June	20. "	8. "
July	17¼ "	8. "
August	18½ "	8. "
September	22. "	8. "
October	22. "	10. "
Average	21.8 "	9.35 "

SUMMARY.

The farm department has received no aid from other sources since 1884, but since that time it has increased the amount of sales, the number of animals in the herds, the proportion of pure bred and grade animals, and room for storing forage and sheltering animals.

Besides the above, the system of cultivation has been such as to improve the fertility and increase the productiveness of every acre of land on the farm, whether under cultivation or in pasture. A large area of land has been protected from washing, leveled and cleared from stumps and roots, and the wet land drained. Eight large pools have been excavated and a permanent supply of stock water provided for every field on the place.

The marked improvement in the 1,100 acres of the south farm led the Appraising Committee to raise the valuation $5 per acre above the appraisal of November, 1885.

I am under obligations to the President and members of the Faculty for aid in my work, and I am indebted to my assistants, Messrs. J. J. Higgins and B. Irby for looking after details; also to Mr. J. N. McKell, foreman of the farm. Respectfully submitted.

F. A. GULLEY,
Prof. of Agriculture and Supt. of Farm.

REPORT OF DEPARTMENT OF CHEMISTRY.

BY

JOHN A. MYERS, Professor of Chemistry.

General S. D. Lee, President of A. & M. College:

SIR—The following report of the progress of the Chemical Department for the years 1886-7, up to November 13, 1887, is respectfully submitted.

For convenience we may consider this under the following headings:

1st. Instruction to students in class-room and laboratory.

2nd. Work for the general agricultural progress of the State. Farmer's Institutes. Correspondence.

3rd. Original investigations.

Taking these up in the order given, I would state that my work in the section room embraces the following instruction:

The Senior Class, takes Meteorology under me, and will in future also take Chemical Physics. Each for three months, one hour a day.

The Junior Class takes Agricultural Chemistry three months, one hour a day.

The Sophomore Class studies Elementary Chemistry three months, one hour a day, and this year also Practical Chemistry, two hours a week. Six months is devoted to Analytical Chemistry two hours a day.—this being divided equally between Blow-Pipe Analysis and Wet Analysis.

The Freshman Class takes Natural Philosophy or Elementary Physics three months, one hour per day.

The number of students in the respective classes corresponds quite closely to those given in the catalogue, some of the classes being a little larger, and others perhaps a little smaller, varying with the number of "irregular students" who happen to elect studies in this department.

The general progress of the students is entirely satisfactory. In practical chemistry I am assisted by Mr. Harrington as the sections are too large to be well instructed without assistance. The remainder of the instructions is given by myself.

APPARATUS.

We now have facilities for carrying on the ordinary analytical work of an agricultural chemical laboratory. And our development in future will be directed to perfecting the present arrangements and keeping abreast with the advances made in this department of science.

We are provided with quite complete outfits for the analysis of soils, fertilizers, feed stuffs, milk, sugar, wine, and for assaying and carrying on any of the analyses of commercial products that may be sent in for analysis. We are well provided with platinum, porcelain and glassware.

Our chemical apparatus is of the best and latest construction, and we doubt whether a student of agricultural chemistry can find better facilities anywhere in this country than those offered at this institution.

Our physical apparatus is less complete and should receive a liberal appropriation in order to increase it at the earliest possible moment. As it is at present, we are able to illustrate only a part of the subjects treated of in the course in elementary Natural Philosophy, being virtually without means of illustrating the subjects treated of in the course in Chemical Physics.

We have a fairly complete set of Meteorological instruments, our most urgent need in this direction being an Anemometer with the attachments, costing about $75.

Nearly all the apparatus required is of the more expensive kind, and cannot be purchased until we have money in considerable sums at our command, as many of the instruments required cost not less than $100.00 each. This is the greatest need of my department at present, and should receive the earnest attention of the authorities at the earliest convenient time. We have probably a greater number of students in attendance here than at any institution in the State, and as they belong to that class of young men who, more than any other, requires the practical applications of science as it is taught here, it would seem not to be asking too much, that they have at least equal facilities, to those offered at our State University in the same department.

Work for the general agricultural progress of the State falls under correspondence, farmers' institutes, conventions and articles for publication.

The correspondence of the department is no light task, and embraces about twelve hundred letters to private individuals, during the past two years, in answer to various inquiries upon topics connected with agricultural subjects, and extends to most of the Southern States.

FARMERS' INSTITUTES.

I have attended most of the Farmers' Institutes held in the State by our Faculty. Perhaps nothing undertaken by our College is attended with better results than these have been and would be, if provision could be made so that they could be held in every county in the State. By this means we have been enabled to come very close to the farmers, and not only find what their various needs are, but also to give them information which at present has not appeared in a form accessible to most of them. Besides this, it enables us to correct any error that our statements might lead to, on the spot. In all parts of the State that we have visited, we have been faced by the same problems, all of which are at present weighing heavily upon the minds of our farmers. Such as: "What shall we do to restore our worn-out lands?" "How shall we increase and retain the productiveness of our soils?" "What are the best fertilizers and how to use them?" "What grasses are best suited to this climate, and how should they be cultivated?" "What breeds of stock are best suited to the State, and how should ensilage be prepared and preserved?" These questions and many others of a similar character have been asked I believe at every Institute, and the seriousness with which they are put shows how earnest the farmers are to acquire available information upon these subjects.

In my intercourse with the farmers of the State at these institutes, their troubles have not impressed me as being such as may [illegible] readily met and overcome. If we can induce them to believe that "there is life in the old land yet" and indicate lines of progress through which a more rational system of farming may lead to greater agricultural prosperity than the State has ever enjoyed, I for one, shall not regret the time that has been spent with yourself and others of the

Faculty in an earnest effort to change and elevate the agriculture of the State.

The Interstate Dairymans' and Fruit Growers' Convention held at Jackson in the spring of this year, and the convention of the Yazoo Delta Farmers held in Greenville, Miss., together with several conventions of scientific men held elsewhere, have required addresses, or papers, or service, upon important committees, which duties I have endeavored to discharge to the best of my ability.

There is also a rapidly growing demand for the contribution of articles for the press, and such as I have been able to supply have found quite wide circulation through several of the most influential papers in the South.

The carrying on of original investigations must ever be a secondary undertaking, so long as so much of my time is necessarily devoted to the routine of the class-room. We labor under several difficulties in this kind of work which is not and, perhaps, never can be appreciated by the public. I have, however, endeavored to make a beginning, which is indicated in the following analyses. In addition to this, I have also begun a study of the Southern dairy products, which must necessarily continue some time before results can be given. It is my hope, also, to soon be able to set on foot several other investigations which may contribute to a better knowledge of our Southern agricultural products.

The following work upon the green measures has so far been carried on in connection with work being done by Prof. Gulley. Such problems as he has been studying will no doubt appear in due time, this of mine being simply preliminary, and acknowledged to be yet very incomplete. I am responsible only for the analyses of these samples as they came into my hands prepared.

The first object of my work is to get at a more exact knowledge of some of our Southern forage crops; it being in contemplation to extend the work as rapidly as my time and facilities will permit until all of the principal crops are examined. It will take several years to go through with the work.

The second object is to determine the recuperating capacity of these growths for the soil if plowed under or allowed to remain upon the soil.

Third.—Later we shall endeavor to ascertain their feed value, for producing beef and butter.

Fourth.—The best means of fertilizing them, and the character of soil best suited to their production, will receive our attention as the investigation advances.

The plan pursued has been to take an average square yard or square foot of surface and carefully collect the tops from it, and preserve these as free as possible from dirt or other impurities; weighing the same when green, air-dried, and dried at 212° F. until no farther loss of weight takes place. From this we calculate the yield per acre. Of course as the crop in this case is cut even with the ground, it will appear to be larger than is generally secured as a hay crop. The earth around this area is then cut down to the depth to which the perceptible roots of the crop run, and the roots are carefully washed out by directing upon them fine jets of water, so as to cause them to separate from the soil readily. This work was performed under the direction of Prof. Gulley. The roots after being carefully washed are weighed, as the tops are, and preserved and analyzed separately from them, the quantity of roots per acre being likewise calculated. The tops and roots are thus separately analyzed, and the quantities of the respective ingredients determined per acre in each. This gives us a basis to rest upon, for the solution of the other problems. It is admitted that the yield and composition will vary quite widely, but this system appears to present one of the most solid foundations upon which to build any future scientific study of the conditions favoring the rapid and permanent improvement of the soil, and, it is believed, must contribute much toward establishing a more rational system of agriculture than that now in general use.

The study of the position of the roots in the soil does not *now* enter into *my part* of the investigation.

TABLE I.

Showing per cent. of ash, pounds of ash, pounds of dry substance, and pounds of nitrogen per acre in the crops analyzed.

NAME OF SUBSTANCE.	No. of lbs. of dry substance per acre.	Per cent. of ash.	Pounds of ash per acre.	Per cent. of nitrogen.	Pounds of Nitrogen per acre.
No. 1 — *Cow pea vine tops......	2000	7.098	141.96	2.318	46.3600
No. 2 — *Cow pea vine roots.........	522.1	9.93	51.83	1.586	8.2805
No. 3 — Lespedeza tops, Oct., 1 sq. ft	3523.34	9.607	338 48	2.07	72.93
No. 4 — Lespedeza roots, 1 sq. ft.....	755.58	8.725	65.995	1.16	8.76
No. 5—2nd set of roots, lespedeza..	2129.03	14.52	309.135	1.165	24.80
No. 6 — Bermuda grass tops, 1 sq. ft	9433.50	13.84	305.59	0.91	85.84
No. 7 — Bermuda grass roots, 1 square foot........	4304.17	5.84	251.36	0.923	39.74
No. 8 — †Clover tops, 1 sq. ft......	1202.03	10.07	121.04	3.078	36.99
No. 9 — †Clover roots, 1 sq. ft....	642.21	6.71	43.092	2.176	13.96

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* The peculiarity of the growth of the cow pea precludes the possibility of arriving at much idea of the actual rate of production by washing out a few square feet. In this case I have, therefore, found the ratio of root to top, which in the samples examined was 1 to 3.83. I then calculated the composition upon the yield of 2,000 lbs. of tops to the acre. I give the composition of the crop, and whether this be considered the best way of attacking such problems in future or not, the analyses remain, and are of value even if the method of arriving at the yield per acre be questioned.

† The growth of clover is the fall growth from seed sown during the preceding winter or spring, and the roots are, therefore, less than a year old.

TABLE II.

Showing the per cent. of ash; per cent. of phosphoric acid in the ash; per cent. of phosphoric acid in the dry substance; number of lbs of ash and number of pounds of phosphoric acid per acre in crops analyzed.

NAME OF SUBSTANCE.	Per cent. of ash.	Per cent. of P2 O5 in ash.	Per cent. of P2 O5 in dry substance.	No. of lbs. of ash per acre.	No. of lbs. of P2 O5 per acre.
No. 1—*Cow pea vine tops........	7.098	7.72	0.540	141.96	10.959
No. 2—Pea vine roots	9.93	4.41	0.437	51.83	2.285
No. 3—Lespedeza tops, 1 sq. foot, Oct. 28...........	9.607	4.6	0.402	338.48	14.16
No. 4—Lespedeza roots, 1 sq. foot, Oct. 28..........	8.72	2.72	0.394	65.995	2.97
No. 5—2nd lot of lespedeza roots, 1 square foot.....	14.52	2.72	....	309.135	57.90
No. 6—Bermuda grass tops, 1 sq. foot	13.84	2.95	0.408	305.59	38.48
No. 7—Bermuda grass roots, 1 sq. foot	5.84	5.12	0.296	251.36	12.74
No. 8—Clover tops, 1 sq. foot, fall crop........	10.07	6.84	....	121.04	82.21
No. 9—Clover roots, 1 sq. foot, fall crop..........	6.71	7.47	0.782	43.092	5.02

*See remark under foregoing table.

TABLE III.

Giving per cent. of Ash, pounds of Ash, per cent. of Potash in Ash, per cent. of Potash in Dry Substance, and pounds of Potash per Acre, as shown by Analysis of the Crops under Examination.

Name of substance.	Per cent of Ash in it.	Per cent of Potash in the Ash.	Per cent of Potash in the Dry. substa'ce	Pounds of Ash per Acre	Pounds of Potash per Acre.
* Cow Pea vine tops...	7.098	10.58	0.750	141.96	15.01
Cow Pea vine roots...	9.93	10.22	1.012	51.83	5.29
Lespedeza tops 1 sq ft. Oct. 28	9.607	.	0.537	338.48	18.92
Lespedeza roots 1sq. ft. Oct. 28...	8.72	Not sufficient for	analysis	659.95	
2nd lot Lespedeza roots 1 square foot...	14.52	4.94	0.717	309135	15.27
Bermuda grass tops 1 sq. foot...	13.84	5.855	0.177	305.59	17.87
Bermuda grass roots, sq. foot....	5.84	4.848	0.283	25.136	12.19
Clover tops, Fall growth, 1sq. ft...	10.07	15.48	0.725	121.04	8.72
Clover roots, 1 sq. foot, Fall crop........	6.71	5.54	0.356	43.092	2.38

* Note remark under table I.

In connection with this work Mr. Harrington under my direction has made the following complete analysis of the clover plant, collected in May of this year. The figures refer to dry substance:

	Tops	Roots
Nitrogen......................	4.28 per cent	2.17 per cent
Ash..........................	10.14 " "	6.82 " "

The analysis of the ashes is as follows;

	Tops	Roots
Sand and matter insoluble in Hcl.	16.57	34.80
Ferric oxide and oxide of aluminum	8.32	14.93
Lime	25.65	8.63
Magnesia	4.46	5.86
Phosphoric acid	6.84	11.41
Potash	15.47	8.95
Soda (Na. 2O)	2.46	6.71
Chlorine	1.75	trace
Carbonic acid	17.28	1.85
Sulphuric acid	2.06	5.42
	100.86	98.56

The roots and tops are from the same plant taken in May when the plant was in bloom.

Analysis of the strawberry as prepared for shipment. The berries were grown by the Horticultural Department and taken from a crate that was packed ready to ship, so that along with the berry proper in this case we include the "caps" of the berry.

Water	73.68
Organic and volatile matter	25.52
Ash	0.80
Total	100.00

Analysis of the ash.

Silica and matter insoluble in Hcl.	21.66	per	cent.
Potash (K2 O)	21.71	"	"
Soda (Na2 O)	8.90	"	"
Carbonic Acid (CO2)	13.96	"	"
Lime (cao)	13.23	"	"
Magnesia (Mg O)	2.58	"	"
Phosphoric Acid (P2 O5)	9.47	"	"
Oxide of Iron	Trace		
Sulphuric Acid (SO3]	1.37	"	"
Chlorine (Cl)	6.70	"	"
Total	99.58	"	"

It would appear from this analysis that the berry is rich in potash, soda, lime and phosphoric acid, which would indicate that upon our soil an application of ashes (cotton seed hull or wood) salt and bone meal may prove advantageous. I would suggest that the bone meal be applied in the fall of the year, and the ashes and salt very early in the spring. Acid phosphate and cotton seed may be used in the place of bone meal.

I have been ably assisted in my work by Mr. H. H. Harrington, whose time has been quite largely devoted to the analytical work done. One of the most serious obstacles with which we have to contend is lack of proper provision for publication of what is done. Much of the work done in a chemical laboratory is not suited for publication in newspapers and there is no journal in the South like the Versuchs Statonen in Germany through which we can gain access to the public. This difficulty has been met in other States by the publication of regular bulletins giving such information, but no such provision has been made in this State up to the present.

METEOROLOGICAL OBSERVATIONS

Regular meteorological observations under my directions have been taken here for several years past and I have made arrangements whereby we get telegraph reports of the forecasts of the weather every morning. It is proposed to combine with this work a series of observations upon soil, temperatures, electrical condition of the atmosphere and quantity of sunshine as soon as possible.

METEOROLOGICAL OBSERVATIONS.

Month and year	Thermometer in open air. Average per month.	Psychrometer average per mo. Wet-bulb.	Relative humidity or per cent of saturation. Average per mo.	Pressure of vapor in inches. Average per mo.	Reduced barometer readings. Average per mo.	Self-registering minimum thermometer. Average per mo.	Rainfall per mo. in inches.	Snowfall per month in inches
October, 1885	60.1	55.9	76.5	.542	29.578	49.4	2.3	0
November, 1885	54.2	48.6	71.2	.445	29.517	43.7	2.3	
December, 1885	44.9	41	73.7	.312	29.652	31.8	2.5	2.3
January, 1886	34.3	33.7	81.8	.220	29.554	24.7	5.9	1.2½
February, 1886	42.4	40	79.8	.306	29.735	30.2	5.3	
March, 1886	51.1	48.8	82.8	.385	29.485	41.8	7.7	
April, 1886	62.9	57.2	73.2	.587	29.508	53.5	7.5	
May, 1886	72.1	66	69.1	.829	29.453	60.7	1.2	½
June, 1886	76.3	72 9	79.1	.926	29.420	68	7.2	
July, 1886	79.1	74.3	69.2	1.076	29.475	71.5	.1	
August, 1886	83.7	78.6	82.2	.944	29.480	70	4.1	
September, 1886	76.4	72.2	79.7	.928	29.649	74.8	1 6	
October, 1886	62	59	62.5	.689	29.574	69.5		
November, 1886	52	47.6	65.3	.743	29.510	43.8	3.2	
December, 1886	42.5	40	52 8	.254	29.641	39.3	1.5	
January, 1887	41	38.7	66	.365	29.670	28	2.3	3
* February, 1887								
† March, 1887	46.9	42			29.386	33	2.3	

METEOROLOGICAL OBSERVATIONS.—Continued.

Month and year	Thermometer in open air. Average per month.	Psychrometer average per mo. Wet-bulb.	Relative humidity or pe. cent of saturation. Average per mo.	Pressure of vapor in inches. Average per mo.	Reduced barometer readings. Average per mo	Self-registering minimum thermometer. Average per month.	Rainfall per mo. in inches.	Snowfall per mo in inches.
April, 1887	63	59.6			29.350	51	3.3	
May, 1887	71	67.4			29.389		1.6	
June, 1887	78.5	73	49.6		29.460		2.1	
July, 1887	82.2	74.4			29.560	70.8	2.8	
August, 1887	81	74			29.480	69.8	2.2	
September, 1887	77.5	68.7			29.580	62.9	2	
Sums	1434.1	1333·6			679.116		71.0	
Average	66.7	57.5			29.526		3.08	

* The report for this month was accidently sent to the Signal office and not returned.

† A change in system of reports.

METEOROLOGICAL OBSERVATIONS.

MONTH AND YEAR.	Warmest Day.	Coldest Day.	Maximum Temperature.	Minimum Temperature.	Average Temperature.	Greatest rain-fall in any one day in inches.	Total rainfall in inches for the month.
October, 1885	19	13	62.1	49.4	55.7	.5	2 3
November, 1885	6	23	56.2	43.8	50.	1.2	2.3
December, 1885*	8	*15	48.9	31.8	40.3	.8	2.55
January, 1886*	2	*9	36.3	24.7	30.5	1.1	5.9
February, 1886	24	4	46.4	30.2	38.3	1.7	5.3
March, 1886*	18	*10	55.1	41.8	48.4	1.3	7.7
April, 1886	24	5	68.5	53.5	61.	3.9	7.5
May, 1886	31	19	74.	60.1	67.3	.6	1.2
June, 1886	13	4	83.	68.1	75.7	1.8	7.2
July, 1886	31	16	86.3	71.5	79.4	.1	.1
August, 1886	15	30	85.8	70.	77.9	1.8	4.1
September, 1886	11	30	88.8	74.8	83.8	.9	1.6
October, 1886†	18	31	78.4	69.5	74.4	..	..
November, 1886	5	18	59.2	43.8	51 5	1.3	3.2
December, 1886*	22	*6	47.	39.3	43.1	1.	1 5

METEOROLOGICAL OBSERVATIONS (Continued.).

MONTH AND YEAR.	Warmest Day.	Coldest day.	Maximum Temperature.	Minimum Temperature.	Average Temperature.	Greatest rain-fall in any one day in inches.	Total rainfall in inches for the month.
January, 1887	23	3	50.	41.5	45.7	.9	2.3
February, 1887‡	..	..	..	..	..	..	..
March, 1887*	16	*21	78.	33.	58.	1.1	2.3
April, 1887§	15	2	84.	51.	67.5	1.2	3·35
May, 1887	16	6	...	..	..	.3	1.6
June, 1887	14	2	83.5	..	...	1.4	2.1
July, 1887	19	10	91.	70.8	80.9	1.5	2.88
August, 1887	1	31	86.5	69.8	78.6	.9	2.2
September, 1887	13	24	85.1	62.9	74.	1.6	2.

*Frost.

†Slight frost 25th, 8th, 9th, 30th.

‡Report sent to Signal Office by mistake and not returned.

§Form of Report changed.

DEPARTMENT OF ENGLISH

AGRICULTURAL & MECHANICAL COLLEGE OF MISSISLIPPI.

November 12, 1887.

Gen. S. D. Lee, President:

DEAR SIR: In conformity with law, I submit the following as my third biennial report of the organization and work of the Department of English.

The object that I have kept steadily in view in the management of this department during the past two years has been threefold; (1) to give such a knowledge of our vernacular as shall make the student accurate and ready in the use of spoken and written language; (2) to make this knowledge supplement the work of the industrial departments of the institution; (3) to afford such a liberal culture in literature as shall conform the student's taste to a correct standard, and stimulate his own aptitudes for expressing original thought. In addition to this main purpose of the department, under the present organization of the College, the subjects of political economy, history and government have been assigned to me, or to the adjunct professor of English.

The modifications in organization, which have, with the advice and consent of the Faculty, been steadily progressing since my last report, and are now consummated, develop the following course of study:

* FIRST YEAR (FRESHMAN.)

A study of the English sentence in its various forms and relations (first and second terms); the etymology and history of the English language (last term); the history of the English people (last term); elocution, by lectures, two hours every week (first term); reproduction of lectures, once a week, (first term); composition and letter writing, bi-weekly (second and third terms); bi-weekly declamations in the presence of the class (second and third terms); Freshman prize declamation for the medal of the Department of English (Friday evening before Commencement); collateral reading during the session.

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* Each scholastic year is divided into three terms of three scholastic months each.

SECOND YEAR (SOPHOMORE.)

Rhetoric with many written exercises, and the preparation at the close of the study of an address on some industrial or scientific subject (first and second terms); declamations before the Faculty and body of students (first and second terms); contesting for places at Commencement by the delivery of addresses on industrial and scientific subjects before the. Faculty and body of students (last term); collateral reading during the session.

THIRD YEAR (JUNIOR.)

The history of English literature, with essays and criticisms, and the preparation of addresses on industrial or scientific subjects (first term); the study of the Constitution of the United States, the delivery before the Faculty and body of students of those addresses prepared in the first term, and the preparation of a second series of addresses (second term); the study of general history, and the delivery before the Faculty of addresses competing for places at Commencement (third term); collateral reading during the session.

FOURTH .YEAR (SENIOR.)

The history of general literature; biographies of prominent authors written by the class; written criticisms on these biographies; preparation of addresses on industrial or scientific subjects and their delivery before the Faculty and body of students (first term); political economy with reference to the various industries, more particularly agriculture, and the preparation of a second series of addresses on industrial or scientific subjects (second term); the elements of criticism, their practical application to some English classic, and the delivery of addresses before the Faculty, contesting for places at Commencement (third term); collateral reading during the session.

FIFTH YEAR (POST GRADUATE.)

Psychology is studied during the first term; three English classics are read and criticised by essays during the second term; and two English classics are read and criticised by essays in the third term.

SIXTH YEAR (POST GRADUATE.)

Logic is studied in the first term, and five English classics are read and criticised by essays during the second and third terms.

PRACTICAL WORK.

There is no school with which I am acquainted where so large a number of written exercises are required as in this institution. To correct these exercises and to see that each student gets the benefit of individual criticism is an onerous task. Both myself and the adjunct professor of English spend twenty hours per week, outside of regular recitations, in this work. All addresses of the three higher classes are subjected to, the criticism of two professors, to the real and logical criticism of the head of the industrial or scientific department under which the address is classed, and to the verbal and aesthetic criticism of the professor of English. The addresses are read with the student, and the errors in the facts or in the mode of expression pointed out to him individually. All this work is done outside of the regular academic hours.

LECTURES,

In addition to the lectures that I am required as a member of the Faculty to deliver before the body of students, I have detivered each year a course of ten lectures to the class in historical etymology; and the adjunct professor has delivered a course of lectures on elocution to the Freshman Class. These lectures are reproduced by the classes and handed to the instructor for his criticism.

MEANS OF ILLUSTRATION.

We are furnished with two excellent maps in spring rollers for our work in history, etc., but are much in need of historical charts and other aids of a like character. The Library is sadly lacking in works illustrative of the different periods of English literature, and entirely wanting in biographies of the industrial worthies of the world—a literature that no industrial institution can afford to be without, if we wish to influence the minds of the young away from the professions and toward the shop, the farm and the garden.

DESKS

There is nothing that the department needs more than desks at which students may write exercises in the presence of the professor. Our work would be doubly efficient if we had a hundred single desks for the use of students; and I respectfully suggest that the Legislature be asked for a special appropriation for this purpose.

COLLEGE RELATIONS.

My connection with Prof. A. A. Kincannon, which, on his election to the superintendency of the Meridian public schools, was severed with regret on my part, was of the most cordial nature, and his assistance in the Department of English was most helpful.

In Mr. White I have found an earnest, active and worthy successor of the two distinguished teachers, Profs. Lipscomb and Kincannon who preceded him in the adjunct professorship of English, and I recommend his work as faithful and efficient.

With the Faculty generally my relations have been of the most friendly nature, each aiding this department whenever possible, and in return receiving such aid as the department could give.

To yourself I am under special obligations for advice and for uniform support in the management of the department.

The following is a tabulated statement of work done during the last two sessions and one month and a half of the present term.

WORK DONE.

FRESHMAN CLASS.

Studies Pursued and Papers Presented.	Enrolled.	Examined.	Passed.
1 Higher English (2 terms) 1885-6	91	61	55
1 Higher English (2 terms) 1886-87...............	85	49	47
1 Higher English (in progress) 1887-88...........	81		
2 English History (1 term) 1885-86.............	77	61	54
2 English History (1 term) 1886-87...............	70	36	34
3 * Etymology and History of the English Language, 1886-87..	70	39	38

4 Three thousand nine hundred and sixty-two (3962) papers submitted and examined 1885-86.

4 Three thousand and eighty (3080) papers submitted and examined 1886-7.

4 Four hundred and five (405) papers covering in the aggregate twelve hundred and fifteen (1215) legal cap pages. submittedand examined to date during the present term.
5 Seven huddred and eighty (780) declamations, 1885-86.
5 Seven hundred and seventy (770) declamations, 1886-87.
5 Declamations to begin November 15th of the present session, 1887-88.

* Transferred, by consent of the Faculty, from the Sophomore year to the last term of the Freshman..

SOPHOMORE CLASS.

Studies Pursued and Papers Submitted.	Enrolled.	Examined.	Passed.
1 Rhetoric, 1885-86............	64	45	37
1 Rhetoric, 1886-87............	40	29	20
1 Rhetoric, (now in progress)	48		
2 Etymology and history of the English Language 1885-86....................	55	41	36
2 * Etymology and History of the English Language 1886-87......	24	23	21

3 Four hundred and thirty (430) papers submitted and examined, 1885-86.
3 Four hundred and ninety (490) papers submitted and examined, 1886-87.
3 Two hundred and forty (240) papers submitted to date, 1887-88.
4 Forty-nine (49) declamations before the Faculty and body of students, 1885-86:
4 Sixty (60) declamations before the Faculty and body of students, 1886-87.
4 Seventeen (17) declamations before the Faculty and body of students to date, November 12th, during the present session of 1887-88.

* Transferred to the Freshman year (last term)

JUNIOR CLASS.

Studies Pursued and Papers Presented.	Enrolled.	Examined.	Passed.
1 English Literature, 1885-6	19	19	16
1 English Literature, 1886-7	31	24	24
1 English Literature, 1887-8 (to be examined at close of the present term)......	22		
2 General History (this study under the old organization, was completed in the freshman year) 1885-6	none		
2 General History (most of this class had already completed the subject in the freshman year) 1886-7	9	9	9

3 Fifty-seven (57) papers submitted and examined, 1885-6.
3 Ninety-five (95) papers submitted and examined, 1886-7.
3 One hundred and ten (110) papers submitted to date during the present term.

SENIOR CLASS.

Studies Pursued and Papers Presented.	Enrolled.	Examined.	Passed.
1 * Moral Science, 1885-6...	12	12	12
2 † Constitution of the United States, 1885-6.........	12	12	12
2 Constitution of the United States, 1886-7............	16	16	16
3 Political Economy, 1885-6	12	12	12
3 Political Economy, 1886-7	16	16	16
4 Criticism, 1885-6...	12	12	12
4 Criticism, 1886-7..........	16	16	16
5 General Literature, 1885-6	12	12	12
5 General Literature, 1886-7	16	16	16
5 General Literature in progress, 1887-8................	22		

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* This study was transferred to another department by order of the Board of Trustees, June 15th, 1886.

† This study has ceen transferred to the last half of the second term, Junior year, by action of the Faculty.

6 One hundred and twenty (120) papers submitted and examined, 1885-6.
6 One hundred and ninety-two (192) papers submitted and examined, 1886-7.
6 One hundred and six (106)papers submitted to date.

POSTGRADUATE CLASS.

Studies Pursued and Papers Presented.	Enrolled.	Examined.	Passed.
1 Logic, 1885-6...............	6	6	6
2 English Classics, 1885-6...	3	3	3
2 English Classics, 1886-7...	2	2	2
3 Psychology, 1886-7.........	4	3	3
3 Psychology, 1887-8.........	2	2	2

4 Twenty-four (24) papers submitted and examined 1885-6.
4 Twenty-six (26) papers submitted and examined, 1886-7.

LIBRARY.

As curator of the Library, I submit the following:

The number of bound volumes now belonging to the Library is two thousand eight hundred and thirty-five (2835), —four hundred and ninety-nine (499) having been added by donation or purchase, since my report dated November 23rd, 1885. Of the whole number, one thousand and eighty-nine (1089) are public documents of the General Government; four hundred and eighty-six (486) are public documents of different States; five hundred and fifty-one (551) belong to the Scientific Departments of the College; six hundred and eight (608) are in the Literary Department; the remainder one hundred and one (101) volumes are classed as miscellaneous.

There are of unbound works two thousand two hundred and seventy (2270) pamphlets, and two thousand five hundred and ninety-six (2596) magazines and periodicals, besides files of the leading journals belonging to the metropolitan press. Mony of the State papers also, through the courtesy of the proprietors, reach our reading room weekly without cost to the College.

I reiterate what I have stated in every report since 1883, that the books which compose the Library are totally inadequate to meet the wants of the students and professors at such an institution as this. We must have a Library suitable for our work, or we will fail to accomplish all that we ought to accomplish toward the intellectual development of the large number of students that attend the instruction given here.

The subscription to our magazines and other periodicals expires December 31st of this year, and the money heretofore at the command of the Librarian for renewing subscriptions is exhausted. Previous to this we have been able to purchase the best magazines and periodicals for the student's reading room; but unless the executive committee of the trustees will make an appropriation for this purpose at their approaching meeting, we will be without the means during the next year to afford students the important help in mind-development which comes from familiarity with such discussions of the living issues of the day as are to be found in our best periodical literature.

There has been spent in the last two years for magazines, papers, etc., the amount of two hundred and sixty-one dollars and seventy cents ($261.70.)

Mr. Gladney, the present Student Librarian, who, under my direction, does the necessary work of the Library, is a faithful and efficient assistant, performing his duties with a zeal and fidelity that is to be commended.

The above report as Professor of English in the A. & M. College of Mississippi, and as Librarian, is respectfully submitted. W. H. Magruder.

REPORT OF HENRY C. DAVIS.

2ND. LIEUT. 3RD. ARTILLERY U. S. A., PROFESSOR OF MILITARY SCIENCE AND TACTICS AND COMMANDER OF THE STUDENTS.

A. & M. College, Miss., Nov. 14th, 1887.

Gen. S. D. Lee, President:

Sir: I have the honor to submit the following report as Professor of Military Science and Tactics and Commander of students:

In accordance with orders from the War Department, I reported to you for duty about June 7th, 1886, relieving 2nd. Lieut. W. L. Buck, 13th Infantry, U. S. Army.

For so much of this as refers to sessions of 1885-6 I have copied the annual report of that officer.

The theoretical and practical instruction for session of 1885-6 is virtually the same as for session 1886-7.

SESSION 1886-7

Class.	Enrolled.	Examined.	Passed.	Studies.
Senior... ...	16	16	16	Mil. Science and Tactics.
Junior... ...	23	23	23	Infantry tactics.

Each class was instructed for six weeks, reciting daily, Saturdays and Sundays excepted.

PRACTICAL INSTRUCTION.

There were company drills once a week for each company from October 3rd to December 1st, and batallion drills once a week from November 1st to December 1st.

There was an inspection of arms once a week from December 1st to March 1st.

From March 1st till close of session there was company and batallion drill each once a week.

I have had target practice with small arms, limited by amount of ammunition available (1000 rounds). Ranges were 50, 75, 100 and 200 yards. The improvement was very creditable to the students engaged.

The Junior class had standing gun drill from March to June, once a week, firing all available ammunition.

There was a sham battle at the close of the session, participated in by the infantry battalion, assisted by two detachments of artillery from the Junior class.

The foregoing, with dress parade, reviews and inspections on different occasions, and guard mounting every morning, comprises the practical work of the Department.

The battalion was inspected December 2nd, 1886, by Col. J. C. Breckenridge, Inspector General's Department, U. S. Army. The number of students in ranks was fully one-third more than is required by law for the detail of an officer. I applied for copy of his report but have not yet received it.

ORGANIZATION.

All students are subject to Military discipline. All students except those on special detail, were required to drill. During present session all drill.

As required by law I have organized the students into a battalion of infantry, consisting of five companies commanded by a cadet Major.

One of the companies is composed entirely of students not living in the dormitory.

ARMS.

The appointment in 1885, of a student Ordnance Sergeant was an excellent change. He cares for the arms, is responsible for their return in good condition, etc.

Owing to this fact, and to the weekly inspections during the past winter, I found the guns in better condition at the opening of this session than at the same time last year.

The arms consist of

150	cadet rifles and accoutrements	(U. S.)
100	" " "	(State.)
40	rifles,	(State.)
2	3in rifled field piecss	(U. S.)

AMMUNITION USED IN PRACTICE.

1000	blank rifle cartridges,	(U. S.)
2000	" " "	(State.)
1000	ball " "	(U. S.)
100	blank cartrigdes for field pieces,	(U. S.)

UNIFORMS.

Some slight changes have been made in the uniform since last biennial report, and the designation of rank has been made to conform to that of the regular army.

The uniform is very neat, serviceable and cheap.

BARRACKS.

During the summer and at beginning of session necessary repairs, as far as practicable, are made in the dormitory, and then each student is charged with any damage he may cause to public property. The cadet Quartermaster looks after this, inspecting and reporting weekly.

There are, at present 209 students quartered in the dormitory. This necessitates putting three students in some of the rooms. In my opinion two is as many as should be allowed in one room in order to get best results from study, and for health.

To accommodate all who apply the dormitory room should be greatly increased, for students who live in the dormitory have great advantages over those who do not. The former imbibe more of the spirit of the institution and are absent from recitation fewer times.

FURNITURE.

This is an item that calls for, and I earnestly recommend it to, your careful consideration. Much of the furniture is used by the original purchasers for but one session, and at its close is sold at a sacrifice. Possibly returning he buys new. Many come who can remain but a short time and their furniture will cost as much as that of one who remains longer. When purchased in this way there is a lack of uniformity, and thus a loss of living space in the room. To avoid this I recommend that the State furnish the articles named below and that a rent be charged and collected with the board bill. The rent should be just enough to keep up repairs, and reimburse the State in a reasonable time.

LIST.

1 single iron bedstead, army style, for each student.
1 plain deal table for each room.
1 plain deal washstand for each room.
1 set plain deal clothes shelves for each room.

FIRE DEPARTMENT.

The whole corps has been drilled in passing buckets of water from the cistern to different parts of the dormitory. In addition to this there is a hose which will conduct water to any part of the dormitory. I have organized a detachment to serve hose in case of fire. The water supply for this purpose is obtained from tanks in the garret of the building.

DISCIPLINE.

The discipline is good, and respect for order which is so necessary, is steadily on the increase. The moral tone is growing better each year. This is shown by the annual report of my predecessor, and it is also my experience during my term at this College. The following table shows this fact :

		1885–6	1886–7	To date.
Students	Entered.	415	270	260
	Dismissed.	9	2	0
	Expelled.	2	0	0

Punishment has been awarded for certain offenses. In most cases the object has been to correct carelessness and neglect of duty, thereby fitting the student for a more successful business life. It is also awarded for failure on recitation. The latter has a beneficial effect.

That the discipline is not too strict is shown by the fact that many students have no demerit at the close of a session. On the other hand, those who are inattentive to duty are constantly on the punishment list.

The military discipline is entirely uniform, treating all alike. It permeates every department, is firm but not severe, and is a most effective means of obtaining good order and attendtion to academic and industrial, as well as military, duties.

ATTENDANCE.

The number of students admitted is limited by the capacity of the dormitory, with a few students boarding in Starkville. This number is much smaller than the number of applicants, showing that with increased room, the attendance would be greatly increased.

After close of session of 1885-6 it was decided to be unhealthy to allow more than two students in a room. This accounts for decrease in attendance for following session, the number of applicants being about the same.

The following table shows attendance by years with loss up to May 1st.:

Session	Students enrolled during Session.	Students present 1st of May.	Per cent of whole Enrollment remaining 1st May.
1880–1	354	129	36
1881–2	304	166	55
1882–3	317	190	59
1883–4	257	155	60
1884–5	291	226	77
1885–6	415	270 *	65
1886–7	276	197	71
To date	260	253	48

* Present June 1st.

In conclusion, I would say that for the present everything in this department indicates a very successful session.

The student officers are quite zealous in their work, and the general advance in military training is very satisfactory, when it is remembered that the principle object of the College is an agricultural education, and that this department must give way to that requirement.

Expressing to you my appreciation of the courtesy you have always extended to me, of your many kindnesses, and of the great assistance you have rendered me in the discharge of my duty, and also thanking the Faculty and students, officers and privates, for their uniform courtesy and assistance at various times, I am very respectfully,

Your Obedient Servant,
Henry C. Davis, 2nd Lt. 3rd Art. U. S. A.
Prof. Mil'y Science and Tactics and Com'andant of Students.

REPORT OF HENRY C. DAVIS,

2ND. LIEUT. 3D ARTILLERY, U. S. A., ACTING PROFESSOR OF MATHEMATICS.

A. AND M. COLLEGE, MISS.,
November 14, 1887.

Gen. S. D. Lee, President :

SIR : I have the honor to submit the following report as Acting Professor of Mathematics.

I assumed charge of this department on October 3d, 1886, relieving 2d Lieutenant W. L. Buck, 13th Infantry, U. S. A.

In my work I have been ably seconded by Assistant Professor Walker and Instructor White, and for the present session by Instructor McGee vice Professor White, transferred to English Department.

FRESHMAN CLASS.	Enrolled	Examined	Passed	Class at present.
Algebra, (Davies') (1885–6)	92	61	45	...
Algebra, (Wentworth's complete,) (1886–7)	82	55	42	...
Algebra, (Wentworth's complete,) (1887–8)	73	...	...	70

SOPHOMORE CLASS.	Enrolled	Examined	Passed	Class at present.
Geometry, (Davies' Plane and Solid) (1885–6..)	48	39	39	...
Geometry, (Wentworth's Plane & Solid,) (1886-7)	45	28	26	...
Geometry, (Wentworth's, Plane & Solid,) (1887-8)	39	...	...	38
Trigonometry, (Davies' Plane). (1885–6.)	38	37	35	..
" (Wentworth's) Plane and Spherical* (1886–7)	22	22	21	..
Surveying, (Davies), Theoretical and Practical (1885–6.)	38	38	35	..
Surveying, (Wentworth's) Theoretical and Practical (1886–7)	22	22	20	..

JUNIOR CLASS.	Enrolled	Examined	Passed	Class at present.
Mechanics, (Peck's). (1885-6)	18	18	18	..
Mechanics, (Peck's), (1885-7)	27	25	24	..
Mechanics, (Peck's), (1887-8)	17	.	...	17
*Spherical Trigonometry, (1886-7),	25	25	25	..
Lectures in Analytical Geometry, (1885-6)	18	18	18	..
Lectures in Analytical Geometry, (1886-7.)	26	26	26	..
Lectures in Analytical Geometry, (1887-8.)	17†	18	18	..

SENIOR CLASS.	Enroled.	Examined	Passed	Class at present.
*Spherical Trigonometry, (Davies,) 1885-6	11	11	11	..
Spherical Trigonometry, (Davies), 1886-7	17	17	17	..
Astronomy, (White's,) 1885-6	11	11	11	...
Astronomy, (White's,) 1886-7	16	16	16	..
Astronomy, White's.) 1887-8	21	..	..	21
Civil Engineering, (Lectures,) 1885-6	11	11	11	..
Civil Engineering, (Lectures,) 1886-7	17	17	17	...

*Transferred from Senior to Sophomore year.

†One student making up this study by examination.

¶Three students failed on account of absence, to take practical part, but will be required to make it up before graduation.

NOTE.—The difference between numbers enrolled and examined in the lower classes is accounted for largely by the fact that many enter on trial and fail to keep up.

The FRESHMAN CLASS. Studies Algebra, from opening of session to about middle of third term. The class is then examined and those who pass take up Geometry, preparatory to next year's work.

SOPHOMORE CLASS is instructed in Geometry from opening of the session to about middle of second term. The remainder of the second term is devoted to Trigonometry.

The third term is allotted to Surveying, Theoretical and Practical.

For field or practical work, the sophomore class is divided into teams of from four to six students each. The work is so arranged that all students are required to familiarize themselves, in turn, with each of the duties incident to surveying and plotting fields, calculating areas, running levels, and measuring angles.

In this way, each session, several fields are surveyed with compass and plane table. Levels are run, and side hill ditches staked out.

In all this work the students handle the instruments themselves, the instructor merely supervising and directing.

The JUNIOR CLASS is instructed in Analytical Geometry and Mechanics during first and second terms. The former study is quite brief and is given in a course of lectures.

In Mchanics every effort is made to give practical instruction, but lack of equipment (mentioned below,) renders this all but impossible. The problems are practical, relating to requirements of every day mechanics.

This class has no mathematics in the third term.

The SENIOR CLASS is engaged in the study of Astronomy during first term and of Civil Engineering during second term.

As in Mechanics, means of illustration in Civil Engineering is entirely wanting, and there are not sufficient books of reference in this course.

The course of lectures on Engineering is a limited one. It treats of building materials in the general sense; strength of materials; framing and building; bridge and roof trusses; strains on parts; foundations on land and in water; excavations, etc.

An examination of foregoing table will show the two parts into which the course in Mathematics is divided.

First—Pure Mathematics to include two terms of Sophomore year; and

Second—Applied Mathematics, the remainder of the course.

Thoroughness in first part is essential to a correct understanding of the second, and for this reason it is insisted on before a student is advanced.

While the first conrse is purely preparatory, the second is full of advantage to the student. Here he gathers the results of previous year's study.

Especially is Applied Mathematics of advantage to the students of an institution like this, the genius of which is to give a practical everyday education.

The department is hampered in its efforts to give such practical instruction, by entire lack of appliances and apparatus as means of illustration, and for application of theory to practice.

In surveying, leveling, etc., the proper instruments are at hand, and good use is made of such equipment as has been granted. (See Sophomore Class,” in remarks after table.)

With this showing I most respectfully request that some equipment be granted the mathematical department, and some books of reference on that subject be added to the College Library. This is a pressing need and one which asks attention.

I append a list of articles which would add greatly to the teaching facilities of the department.

The method of *object lessons* is now generally adopted to instil first principles, and I repectfully ask the means to follow this method. I ask for the following:

Means of Illustrating Mechanics.

Aticles.	Catalogue Price.	
The parallelogram of forces	20 to 50	Marks.
The bent lever	30 to 45	“
The inclined plane, with graduated arc, and arrangement to make the force act parallel to the base	36 to 50	“
The screw	5	“
The endless screw	50	“
The apparatus for illustrating the laws of the wedge	12 to 25	“
Blocks and pulleys on stand	50 to 80	“
Apparatus for explaining laws of the lever	35 to 50	“
Simple windlass	20	“
Differential windlass	30	“
Apparatus for explaining the laws of stable equilibrium	24 to 35	“
Apparatus for explaining the law of equal transmission of pressure	250	“
Apparatus for showing parabolic motion of projectiles	25	“
Centrifugal machine to stand horizontal or vertical	30	“
Flattening of the earth	18	“
Bohenberger's apparatus for explaining the revolution of the earth on its axis	27	“
Gyroscope, after Fessel, with counterpoise of 7½ cms	30	“
Crank handle and axle	15	“
Chain pulley with single groove	34	“

Breast wheel constructed of timber	175	Marks.
Overshot wheel constructed of timber	180	"
Low pressure turbine wheel with guide blades	430	"
Independent wharf crane	150	"

MEANS OF ILLUSTRATING CIVIL ENGINEERING.

Portion of house corner with frame work	14	Marks.
A. Frame work of simple beams	27	"
B. Frame work of crossed beams		"
C. " " " " with furry		"
Single timber connections, 1 to 73, Schroder's collection	116	"
Double beam construction	62	"
Simple shed roof, height—length	14	"
Simple shed roof, with collar beams	15	"
Shed roof, height ¼ length	16	"
Roof truss, height ⅛ length	26	"
Vertical roof truss with single collar braces. collar beam	26	"
Various stone facings and joints	5	"
Door and window semi-circular arch	11	"
Elliptical and parabolic arch	14	"
Models of simple King and Queen post truss,		
Framing ditches for draining meadows, securing embankments and dams	53	"
Books of reference on architecture etc	$50	

The above list is very complete, and possibly beyond the ability of the State at present. I ask, however, that something, if not all asked, be granted. Eight hundred or one thousand dollars will fit up the department in this line very well. I again ask for something, as the department is at present in much need.

I cannot conclude this report without once more respectfully but earnestly, asking recognition of the Mechanical feature of the college.

The law establishing the college grants money to advance the agricultural and mechanic arts. I am the more pressing in this matter as the Honorable Board of Trustees has expressed itself as willing to proceed in the matter so soon as means is provided.

I recommend that this department be granted means to extend its scope to practical mechanics, viz: instruction in use of machinery for wood and metals, and also to instruction in handling, setting up and running .engines and other machines.

I cannot too strongly recommend this step, for until it is taken, this department will, through no fault of its own, lack in one of its branches, that practicality which should pervade every department of an Agricultural and Mechanical College.

PROPERTY BELONGING TO MATHEMATICAL DEPARTMENT.

1 vernier solar transit; 1 theodolite and tripod; 1 plane table and tripod; 1 vernier compass and tripod; 1 New York Rod; 1 Y level; 20 loaded pins; 1 66-ft. steel chain, (broken.)

The above instruments have been in constant use in the Department of Agriculture, Horticulture and Mathematics. The instruments are in good condition considering the use made of them.

I wish to express my thanks to my assistants for their earnest and good work. With full appreciation for all the help you have given me,

I am very respectfully, your obedient servant,
HENRY C. DAVIS,
2nd Lieutenant 3d Artillery, U. S. A.
Acting Professor Mathematics.

DEPARTMENT OF HORTICULTURE.

REPORT OF A. B. McKAY, PROF. OF HORTICULTURE.

A. & M. COLLEGE, MISS., Nov. 19th, 1887.

Gen. S. D. Lee, President:

DEAR SIR: The following report of the Department of Horticulture, from Nov. 20th, 1885, to Nov. 19th, 1887, is respectfully submitted:

CHANGES IN CURRICULUM.

Previous to this session the only time given to the study of Horticulture was three months during the Junior year. The seniors devoted the same length of time to the study of Entomology. Beginning with this session their studies will be arranged as follows; Freshman Class, three months Horticulture and Entomology; Junior Class, three months Horticulture and three months Entomology. These changes will enable us to reach a much larger number of students, and earlier by two years in the College course. Instruction embraces the regular lectures of the class room, discussions from the most approved books and periodicals on the subjects treated, together with the practical work in the Department.

The following are among the subjects discussed:

FRESHMAN CLASS—SECOND TERM.

The propagation of plants from seeds, cuttings, layers, and grafts. The construction of hot-beds, cold-frames, flower-pits, and propagating houses. The location of garden, orchard and nursery lands. Manures, their preparation and application to different plants: The common insects injurious to vegetation and how to destroy them.

JUNIOR CLASS—SECOND TERM

Garden, orchard and nursery economy; gathering and packing frusts and vegetables and the best modes of shipping them to distant markets; crossing and hybridizing, forestry, floriculture, and landscape gardening.

Third Term—Economic Entomology. In addition to above instruction, each student is required from time to time to prepare papers on horticultural topics. My work embraces the duties of the class room, the supervision of student labor, the general management of the orchard, nursery, garden and grounds, and the correspondence of the Department.

STUDENT LABOR.

While students do all the work of the Department where it is at all practicable, we must depend on hired laborers to gather vegetables and fruits for shipment, to run teams, to attend to hot-beds, etc., when it becomes necessary to do such work while the students are engaged with their studies in the class rooms.

The Horticultural grounds cover an area of over one hundred acres of land. The campus and grounds about the buildings, including some twenty-five acres, have been planted to native and other grasses suited to this locality. The groves have been thinned and trimmed. Several acres of broken, rough ground adjacent to the campus have been smoothed up and planted to cow-peas. The cultivated lands are divided as follows: Orchards, thirty acres; vineyard, three acres; garden, seven acres; strawberries, five acres; corn and oats, three and a half acres; raspberries, three-quarters of an acre; asparagus bed, three-quarters of an acre; total, fifty acres.

Only a small portion of the land assigned to the Department is suited to garden and orchard purposes. The soil is poor and cold-natured, and it is difficult to get it in that loose, loamy condition so necessary to the proper growth and development of trees and plants. Some twenty acres of the orchard and several acres of land near the buildings have been planted and cultivated in peas. From these lands we have failed during the past two seasons to gather as many peas as were sown. The soil is simply too poor to produce them. To get a sufficient quantity of land that would grow good vegetables we have been compelled to select small plats here and there, scattered from one side of the grounds to the other. This renders planting, cultivating and harvesting expensive.

The following resolution is copied from the minutes of the Board of Trustees, as adopted at their meeting during the month of June, 1885:

"RESOLVED, That this Board in compliance with memorial of State Horticultural Society, will, as soon as they have the means in hand, comply with said memorial, and otherwise develop the Horticultural Department."

Since the adoption of this resolution by the Trustees, they have from time to time expressed a desire to do something for the Department, but with no means at their command to spend in this direction, the Department as yet is without the assistance necessary to its development.

Five months previous to the date of the above resolutions the Executive Committee of the Board of Trustees placed to the credit of the Department the sum of $1500.00 to be expended in the purchase of nursery stock, materials for hot-beds, implements, fertilizers, food for mules, seeds and other needs of the Department. As you are aware, we had to start almost at the beginning on this small capital. With the exception of something over one hundred wagon loads of manure from the Farm Department, this is all the assistance, aside from student labor, the Department has received since I took charge, September 22nd, 1884, a period now of over three years.

Had the entire $1500.00 been invested in cotton seed meal it would have delivered at the College a little over four car-loads, scarcely the amount that some truck farmers in our State use in a single season for fertilizers alone. It was thought best to invest $600.00 of the $1500.00 in nursery stock. The money was not received until the approach of spring. Orders for stock were forwarded immediately, but the delays on transportation [this was during the New Orleans Exposition, when our railroads were overloaded with freights], kept out most of this nursery stock until vege tation had commenced; consequently, this investment was virtually lost.

Of over two thousand fruit trees in orchard when I took charge, I found a large number standing on ground too poor to produce tree or fruit. We have continued until now to cultivate these at a considerable expense, hoping that, in some way, we could enrich the land before they were beyond recovery. We have several acres in promising fruit trees, but the trees are just coming into bearing, and, as yet, have not been a source of profit.

The College nursery was not a success. It lacked the variety and quantity necessary to command a paying trade. Persons desiring nursery goods in any quantity will place their orders where they can be filled complete, and as the College nursery could not meet these conditions it was not a source of profit, and did no credit to the Institution. Upon my recommendation, Jan'y 4th, 1887, the commercial nursery was abolished, and in its stead a small nursery plat was substituted of sufficient size for College purposes, and to instruct the students in the art of budding and grafting. The Department has at present three sources of income, viz: receipts from the sale of early garden plants, of vegetables, and of berries.

During the past two seasons we grew under 900 sq. ft. of glass a sufficient number of plants for the College garden, and a surplus which sold readily and brought in cash over $80.00. With an extended surface under glass we could have sold four times the number of plants raised.

From four acres in strawberries we gathered 175 bushels of fruit which brought, after deducting cost of boxes, picking, freights and commission, $550, or an average of $137.50 per acre. Tomatoes, irish potatoes, radishes, and other vegetables shipped to market paid well. Summing up cost of labor and other expenses of the Department for the past two years, they are apportioned approximately as follows: To the garden, one-third; to orchard, vineyard, and nursery, one-third; to campus and adjacent grounds, one-fourth; to hot-beds and unclassified labor, one-twelfth. The campus and grounds yield no cash returns whatever; the orchard and vineyard as yet are not in bearing; so, from above figures, you will see that the cash returns from the sale of vegetables, plants, and berries have gone largely to footing up the expense of unremunerative lands. Now, if the net proceeds from the sale of berries, for instance, could be reinvested in the things necessary to enlarge and cultivate properly the area in berries, this strawberry interest would, after a few seasons, place in the treasury of the Department a surplus fund of cash to be used in the developing of some other interest; and so with other divisions of the Department, when once on a good footing. It is a fact that Mississippi is rapidly coming to the front in her horticultural interest. During the last decade this interest in our State has increased at the rate of 33 per cent. per annum; and during the past two seasons at the rate of over 50 per cent. per annum. One has but to visit the towns and villages along her lines of railroads to be convinced of the importance that is being attached to this growing industry. The leading horticulturists in our State are beginning to demand practical results of this institution.

Again: A thing of more importance to my mind lies in this fact: Students coming to this College naturally expect to see something as good, if not better, than they saw at their homes. It matters little how thorough the instruction received in the class room, the student requires the object lessons themselves, found only in the well equipped garden, orchard, and nursery, to convince him that the theories taught are worth putting into practice.

Without the proper object lessons to put before the students, our efforts to send horticulturists from the A. & M. College of Mississippi will be almost fruitless.

The policy I have urged, and shall continue to urge, is this: We should not endeavor at this institution to cultivate in horticultural products a larger area than the means at hand will allow to be cultivated in the best manner.

The Department of Horticulture, it seems to me, should be on an equal footing with other Departments of this Institution. Taking this view of the matter, the following are some of the present imperative needs of the Department:

1st. An ample quantity of manure to fertilize the orchards, vineyard, strawberry bed, and raspberries already planted; also to properly enrich at least eight or ten acres of land to be used as a College and market garden.

2nd. A propagating house and extended cold-frame surface.

3rd. A house with appropriate apartments for storing fruits and vegetables, garden implements, fruit and vegetable boxes; a grafting room and workshop.

4th. A drying machine to assist in putting up vegetables and fruits for the students and for sale.

5th. A wagon, supply of garden implements, and fencing materials to enclose the horticultural grounds.

A rich soil is the horticulturist's bank. Without it his labors are worse than wasted. Until we can command the means to secure a large amount of fertilizers, and to otherwise equip the Department, we cannot hope to get it on a paying basis.

Hoping that a special effort will be made to develop this important department of the College, the above report is respectfully submitted by

Your Obedient Servant,
A. B. McKay,
Prof. of Horticulture.

REPORT OF T. F. WATSON,

Instructor in Book-keeping.

A. & M. College, Miss., Nov. 20, 1887.

President S. D. Lee:

Sir: Herewith is submitted my third biennial report as Instructor in Book-keeping:

In this study the Freshman Class is instructed during the last term, (three months).

Last session we had seventy-seven students in the Freshman Class, which was divided into three sections. The students manifest considerable interest in the subject, and make satisfactory progress, but the time given is so limited we cannot give a thorough course. We endeavor to teach the subject practically as far as possible, and require the writing of as many exercises as the the student can perform without interference with his other studies. The text book used is Bryant & Stratton.

Very respectfully,
T. F. Watson,
Instructor in Book-keeping.

REPORT OF ERNEST L. DIMITRY,

Instructor in Charge of Drawing Department.

Gen. S. D. Lee, President:

Dear Sir: In compliance with your request I have the honor to offer the following report:

Through several unforseen circumstances I was unable to organize my classes until three weeks after the opening of the regular session. When I did so there were 135 names on my roll; this number was reduced, for various reasons, to 117 in the three classes divided as follows:

Juniors	17
Sophomores (two sections)	39
Freshman (four sections)	61
Total Nov. 1st	117

When I took charge of the Department I found that the equipment was entirely limited and crude. Some few changes have been made for its betterment, but there is still much to be done. What the Department principally needs is about forty properly made, well seasoned drawing boards, the tables now in use being so untrue as to make it utterly impossible to do satisfactory work. It should also be provided with some simple, inexpensive apparatus for the practical illustration of the theories of "projection," "perspective," etc.; a few casts from the antique, a small but choice reference library for the use of students and instructor, and should also have a larger—though equally well lighted—room assigned it, than the one at present occupied.

These with a few minor changes, would put the Department on a good working basis, which could gradually be improved from year to year until the proper standard was reached. The time for instruction is too short to teach more than the barest facts, and should be increased to, at least, six months per session, no college, whose catalogue I have yet examined, devoting so little time to this important study as this institution.

Now a few words as to the method of instruction which I follow:

It is that which is used by all really progressive schools of drawing throughout this country and Europe. It consists of full explanatory lectures from the black-board, illustrated, wherever possible, by necessary sketches and simple apparatus. The work is extremely practical throughout, and aims to awaken the reasoning powers of the student, and teach him to depend more on his own judgment. In this it is the exact opposite of its almost obsolete rival, known as "drawing from the flat," in which the pupil merely copies a drawing placed before him, without care for the "why and wherefore" of the various lines he so carefully imitates. A student, and he having the most imitativeness in him, usually succeeds the best, may draw, in this manner, for years, equalling the copy before him in many cases, without being competent to sketch the simplest object, a box, for instance, if called upon to do so. This is the case nine times out of ten. In commencing my classes this fact presented itself; that of the three classes under my charge, the highest occupied that position in name alone. This necessarily called for somewhat similar treatment in all. I, therefore, concluded to make the Freshman a preparatory class, or feeder, for the other two, in which I would divide the time about equally between free-hand and instrumental drawing, giving the former study alone to the Juniors and the latter to the Sophomores. The time being so limited I was obliged to mark out a very small course of work for these different classes. I determined; as there would be but little opportunity for extended practice, to confine my instructions to the principles of the subject, trusting that the greater part of the class would become sufficiently interested to practice outside of the class-room. This, I believe a number have done. Those principles, which I have touched upon, I have aimed to impress as thoroughly as possible on the students' mind. I have carried the Freshmen and Junior through a parallel course of freehand drawing, beginning at combinations of straight lines, taking them through the various classes of curves, regular, compound, balanced, etc. At this point the course branches off, the Juniors taking the theory of perspective, and its practical application to drawing from geometrical models, (on which they are now engaged, and will be until the end of the term), while the Freshman take up their instrumental work, so as to be prepared to follow the Sophomore year without losing any unnecessary time in learning the practical uses of the various instruments, inking, etc. The Sophomores, not having the latter advantage, begin their course in instrumental work at about the same point as the Freshmen, but, having no free hand work, have advanced further in the subject of mechanical drawing than the latter, having taken the theories of "projection" and "isometric perspective." It is my intention to select such of this class, who are, in my judgment, sufficiently advanced, and to have them make a set of practical drawings of a modern barn or creamery, from measurements taken on the spot. Those who succeed, (and I think a good majority of them will undoubtedly do so), will thus have a full set of working drawings, for the erection of such a structure, which may be of use to them in the future, without the expense of employing an architect to furnish the plans. This seems to me to be the most practical application of this study for the use of progressive, scientific farmers.

In both the Freshman and Sophomore classes a text book is used, containing the different problems for constructing the regular geometrical figures, bisecting angles, etc. The students in the three classes, as a whole, evince a daily increasing interest in the study; the improvement of same being especially encouraging. The discipline has been extremely good throughout. There is, however, at the beginning and ending of the recitation, owing to the crowded state of the room, considerable noise and confusion, knocking over of stools and moving of tables, which could be greatly lessened by having the latter fastened to the floor.

In conclusion I beg leave to call your attention to the recommendations, throughout the body of this report, and to urge that a sufficient apporopriation be made for the purchase of the suggested articles, etc., which will greatly improve the usefulness of this Department, and increase its importance as a factor in the College curriculum.

Respectfully submitted,
Ernest L. Dimitry, Instructor,

REPORT OF PREPARATORY DEPARTMENT.

Agricultural College, Miss., Nov. 15, 1887.

Gen. S. D. Lee, President:

Dear Sir—In submitting the following report of the Preparatory Department, for the sessions of 1885–6 and 1886–7, I would state at the outset, that the design of the department, as well as I understand it, has been faithfully and strictly adhered to in all points of management and instruction.

This design, as its name indicates, is to furnish such instruction in the elementary branches as will enable the students in it to enter the lowest college class well prepared for an intelligent and profitable pursuit of the studies prescribed in the regular course; or, should they not be fortunate enough to take the college course, will, at least, better qualify them to assume the active duties of life. Such instruction is not, as a rule, given in the public and private schools throughout the State, especially in the country districts; hence, the necessity for such a department at this institution, established for the industrial classes, and patronized largely by the agricultural element of our population. When we consider too, that a large proportion of the applicants for admission into this department are young men from the country, too far advanced in age to be willing to attend the district school, and who would otherwise assume the duties of citizenship, ignorant of even the rudiments of an education, the benefits of such a department become more fully appreciated. Here, those who have neared and perhaps passed the boundary line between youth and manhood can and do assemble, and, without the mortification incurred elsewhere, endeavor to overcome as far as possible the disadvantages under which they feel that they are about to enter the struggle of life. Surely these young men should be granted the opportunity which they seek, and the State could hardly make a better investment of a portion of its revenue.

COURSE OF STUDY AND METHODS OF INSTRUCTION.

During the session of 1885–86, the course of study in this department required two years for its completion. In the Junior year, or lower grade, the following subjects were taught: Reading and Spelling, Rudiments of English Grammar, Practical Arithemetic, Penmanship, and Declamation. The studies of the Senior Year were: English Grammar and Composition, Higher Arithmetic, Geography, United States History, Algebra, to Equasions of the First Degree, Agriculture, Penmanship, and Declamation.

But at their annual meeting in June 1886, the Board of Trustees reduced the course of study in this department to one year, the subjects embraced therein to be the same as those enumerated above for the Senior Year, or upper grade. This has, of course, considerably diminished the number of students in the department since that time, as will be seen further on in this report.

Instruction in all branches is made as thorough and as practical as possible. To cause pupils to think for themselves and express their thoughts correctly and easily, thus increasing their knowledge and developing their power to acquire knowledge both within and without the text-book is the chief end of all our instruction. By numerous and varied exercises, we also endeavor to make them skillful in the application of the knowledge which they gain of different subjects.

English, in which most of the applicants are quite deficient, is taught practically rather than theoretically. Composition work of various kinds is frequently required, such as exercises in punctuation and the use of capitals, the reproduction to narratives and descriptions read aloud by the teacher, the writing of letters of different nature, essays on familiar subjects, and occasional debates upon topics suggested by the lessons. By a recent rearrangement of the daily programme one afternoon in each week is devoted exclusively to such work as this, and to instruction and practice in the delivery of declamations.

Arithmetic, oral and written together, is taught inductively: developing first the principle involved, and from that proceeding to the definition or rule—"through processes to rules" being the order of instruction. Here we aim at close reasoning, correct expression, and accuracy and rapidity in execution. It is almost needless to add that especial attention is paid to the business portions of Arithmetic as a preparation for the study of book-keeping in the Freshman class, and as a further preparation students are made familiar with the ordinary language employed in writing notes, receipts, drafts, bills of sale, and other business forms.

An explanation of the methods of teaching all the subjects in our course would make this report too lengthy; therefore, I will allude to but one other, Agriculture. In this study, I find tnat the pupils take the greatest interest, and make the most satisfactory progress. The freshness and practical bearing of the subject pleases them and awakens their interest; even our dullest students exert themselves to master it. This study was introduced into the Preparatory course two years ago, and the results up to date are very encouraging. During the session of 1885–'86, out of more than one hundred and fifty students examined on Agriculture, only three or four failed to pass the examination; and not one failed after combining his examination mark with his average monthly grade. The result in 1886'–87 was equally good, the records showing not a single failure. Mr. B. Irby, who is also assistant in the Agricultural department, has charge of the classes in this subject, and to him, and to Professor Gulley, in the preparation of his admirable little book, "First Lessons in Agriculture," is due all the credit for what has been accomplished in this line of study. The introduction of this little work as a text-book in our country schools would, I am convinced, promote the cause of Agriculture in our State. In addition to the instruction given in the text-book, supplementary lectures are occasionally delivered to the classes by the Professors of Agriculture and Chemistry.

ATTENDANCE AND SCHOLARSHIP.

By reference to the following tabulated statements or summaries the number of students in attendance during the two past sessions will be seen, and some knowledge may be gained with reference to their scholarship:

SESSION 1885–'86.

	Senior Year.	Junior Year.	Total.
Enrolled	143	84	227
Average Monthly Attendance	107	56	163
Found Deficient	9	4	13

SESSION 1886–'87.

Enrolled	95
Average Monthly Attendance	73
Found Deficient	4

The decrease in attendance this session as before stated, was due to the fact that the Junior Year of the course had been lopped off; and also to the intention of the authorities to limit the attendance in this department to those only who could be accommodated in the dormitory in excess of the number in the regular college classes. Twenty-six applicants were rejected this session, because they were not prepared to enter the department.

During these two years the students as a rule studied well, as will be seen by observing the small number found deficient each session, and their deportment in the class rooms was exceptionally good.

The session of 1887-'88 has begun quite auspiciously, and the prospect is bright for a successful year's work. About one hundred students have up to this time been enrolled and they are prosecuting their studies in a very satisfactory manner. Ten or twelve of the college students also take arithemetic with the preparatory class. Fifteen applicants have been rejected on account of lack of preparation.

ASSISTANTS.

During the session of 1885-'86, when two hundred and twenty-seven names were enrolled in the department, there were five instructors appointed to assist me, namely : Messrs. J. H. Logan, J. M. White, L. B. Reid, B. Irby, and W. L. McGee. Mr. White, however, was engaged about one-half his time in teaching the Freshman class and to compensate partly for this loss of help, Mr. J. J. Huggins, Assistant in the Agricultural Department, taught for me one hour each day during the first and last terms.

Just here it becomes my sad duty to record the death of one of our most valued assistants, Mr. John H. Logan. By a most unfortunate accident, this worthy young gentleman met his death in the early part of July, 1886.

The following session, 1886-'87, the Junior or lower grade of the department having been abolished, only two regular assistants were employed, Messrs. J. M. White and B. Irby. But as in the previous session, Mr. White's time was to a great extent taken up with the Freshman class, and some provision had to be made to counterbalance this loss in teaching force. Accordingly, Mr. J. J. Huggins, Assistant in the Agricultural Department, Mr. W. B. Stark, Assistant in the Department of Biology, and Mr. W. C. Welborn, Instructor in Dairy Husbandry were detailed to assist me one or two hours each day at such time as this could be done and not conflict with their other duties. This irregularity and division of duties and responsibilities should, in my judgment, be avoided if possible; for the result is not satisfactory either to the young men so employed or to the students who receive such irregular instruction; nor, I will add, to the professor in charge of the department.

Consulting the tastes and aptitudes of my different assistants, I have adopted the plan of assigning to each a particular line of work; thus to one I have given all the classes in Mathematics; to another, all the classes in History and Geography; and to another, only English. The results of this plan have fully justfied its adoption; for by means of it the teaching has been more thorough and the grading more uniform than they would otherwise have been.

The instructors have all been faithful and energetic in the performance of their respective duties, and to them I cheerfully accord a large proportion of the credit due for the success which has crowned our efforts. Our relations have at all times been perfectly harmonious, and they have generally manifested much interest in their work.

We begin the present session, 1887–'88, with three regular assistants; Messrs. B. Irby, W. L. McGee, and J. J. Huggins. These are all capable and successful teachers; and I doubt not that with their hearty cooperation we can make the department more useful than ever.

SUPERVISION.

Of all the duties which devolve upon me, that of supervising is the most difficult and important. Half of my time is spent in regular class room work, the other half in supervision, which is done by daily visiting the rooms of my assistants, to note in person the methods of instruction and manner of recitation. I frequently teach the classes thus visited myself, and occasionally exchange my regular class with an assistant, for the purpose of noting more closely the qualifications and attainments of the pupils; thus enabling me to judge more accurately as to what section they properly belong.

As a further means of performing this duty I have, since I I have been in charge of the department, held regular meetings with my assistants, in order that we might discuss fully and freely the progress made by classes and individuals, and devise ways and means by which to promote the various interests of the department. In these meetings, we also discuss informally the best methods of teaching the different branches of study in our course, the particular subjects then before us, the proper management of classes, and other topics of interest and importance connected with our work.

MEANS OF ILLUSTRATION.

The department is well supplied with blackboards, globes and outline maps; but to one or two other desirable helps, I would here call your attention. We need a larger number of United States Histories in the library for the use of students seeking information not contained in the ordinary text-books.

There are only two large histories of our country in the library, and one of them (Stephen's) has been literally worn out by students referring to it so often. As students can enter the library only at certain hours, it often happens that several desire to use these books at the same time. Hence we need half a dozen of these histories; such as Bancroft's, Ridpath's, Barnes' and Stephen's. An increase in the number of biographies in the library would also be very acceptable and beneficial to the students in my department; for such works go hand in hand with history, and are in constant demand by the skillful teacher of that subject, furnishing, as they do, a very interesting and instructive line of collateral reading.

In conclusion, Mr. President, I would return thanks to you for the watchful and unfailing interest with which you have always supported and encouraged me in my work; and I would also make grateful recognition of the assistance which others have kindly rendered me on several occasions.

Respectfully submitted,
DABNEY LIPSCOMB,
Professor in Charge Preparatory Department.

REPORT OF J. H. WELLBORN,

INSTRUCTOR IN PENMANSHIP.

A. & M. COLLEGE, MISS, Nov. 17, 1887.

Gen. S. D. Lee, President:

SIR: As penman I would make the following report:

During the session of 1886-87 the Freshman class and Preparatory Department received instruction in writing. During the past two months of this session, only the Preparatory Department and eighteen irregular Freshmen have received instruction, 99 in all. Writing in copy books, practice on paper from written copies, lectures and black-board illustration are the methods of instruction. Discipline good.

Fancy writing is avoided. A good business hand is the object in view.

Respectfully submitted.
J. H. WELLBORN.

REPORT OF W. H. BARR,

SURGEON FOR THE COLLEGE.

A. & M. COLLEGE, MISS., Nov. 17, 1887.

Gen S. D. Lee, President

SIR: This second biennial report in regard to the health and sanitary condition of the College, I now respectfully offer:

The health for the session of 1885-6 was not very good—we had a good deal of malarial trouble, comprising four or five very serious cases of malarial hermaturia, with the students from the Mississippi Bottom, and other low lands and swamps of the State. For this session, to date, we have had exceptionally good health. I am gratified to say, since my last report, Nov. 25th, 1885, we have not had a single death or accident among the students.

The sanitary condition of the campus has been excellent. Under the present system there is no possible chance for the soil, and thereby the water, becoming contaminated with poisonous gases or germs eminating from the offal and other unnecessary filth attendant upon so large a body of students as we have.

The diet at the College Mess Hall, under our present Steward, S. H. Howard, has been wholesome and well prepared.

Our facilities for taking care of the sick could scarcely be improved on. The Hospital stands upon the best drained site on the grounds, with a gradual slope from all sides.

The building is well constructed, and arranged with four (4) large rooms, capacitated for six (6) beds each, and have good wood fire places. Also four (4) smaller rooms, all of which ore furnished with bedsteads and other necessary furniture, including a gasoline stove for the purpose of warming food, heating water, etc., for the sick. There is a professional nurse at the Hospital, whose duty it is to be with the sick at all hours, and to carry out my direction in giving medicines and looking to the diet, etc. I am happy to say he gives perfect satisfaction and is well liked by the student body.

It is my duty to have regular hours at my office, to prescribe for the sick and grant excuses to all of those who are unable to perform the duties of that day. I am also the sanitary officer, and as such, I am to decide when the peculiar state of the weather requires, in the interest of health, the cessation of any duty to be performed by, or required of the students; to look into the diet at the Mess Hall; also, to do whatever else is required of me, as health officer, by the President. For said services I am paid a fee of five dollars, by the College, for every student that matriculates—this fee is collected of the students.

W. H. Barr, Surgeon.

REPORT OF S. H. HOWARD.

Steward for the College.

A. &. M. College, Miss., Nov. 17th, 1887.

Gen. S. D. Lee, President:

Dear Sir: I hereby submit the following report of th Steward Department:

We have a large and comfortable dining hall with storeroom, kitchen and bakery attached. One large range and fixtures, one large bake oven, sufficient crockery for 250 students, one good wagon and team to do the hauling.

The price of board for the last session averaged $7.70 per month, including lights, hire of all servants and extras at Hospital; the fare being good and substantial. Supplies are purchased to the best advantage, and at the end of each month board is charged to students at actual cost. The Department is well equipped, and in good running order.

Respectfully submitted,

S. H. Howard, Steward.

REPORT OF STATE CHEMIST.

Gen. S. D. Lee, President.

Sir: As State Chemist of Mississippi I would respectfully submit the following report of the analytical work done in this Institution. As provided by the law of the State I am ex-officio State Chemist, and have discharged my duties as such, so far as I am aware, to the entire satisfaction of those whose interests have in any way been effected by my work.

Respectfully,

John A. Myers, State Chemist.

STATISTICS OF THE EXTENT OF THE TRADE.

I have endeavored to secure accurate statistics, by asking each manufacturer to indicate what number of tons of his respective brands are sold in the State. The most of the manufacturers selling in the State have kindly done so, but a few have failed to comply with the request thereby leaving the figures and information incomplete. In this way I have heard of about 10,475 tons sold in the State. A part of this, however, is stated as approximation or as hope of sale, while several of the brands quite well known in the State, have not been heard from.

The best information at command leads me to think that the actual sale of fertilizers in the State amounts to a little over 10,000 tons a year.

The Fertilizer Exchange, as I am informed, has been able to trace only about 10,000 tons upon the different railroads. Their figures refer to the fertilizers shipped into the State and do not account for those simply passing through the State, as I understand them. But even if they refer to the number of tons actually delivered in the State, we must remember that the local factories use a considerable amount of the crude material in the manufacture of fertilizers that would be reported by the railroads as fertilizers. So that every thing points to the above number as being probably not far from correct.

I attach herewith a table giving the railroad freight rates upon fertilizers upon the leading lines of railroad from points within the State, which has been kindly supplied to me by the Clerk of the Railroad Commission:

CAR LOAD RATES.

Number of Miles.		New Orleans and North Eastern Rrd.	Louisville, N. O. & Texas Rrd.	Illinois Central Railroad.	Mobile & Ohio Railroad.	Memphis & Charleston Railroad.	Kan. City, Memphis & Birmingham Rrd.	Vicksburg and Meridian Railroad.
		Per 100 lbs.	Per Ton	Per 100 lbs.	Per 100 lbs.	Per 100 lbs.	Per 100 lbs.	Per 100 lbs.
10 miles or less.		3½	100	03¾	2½	4	3¼	4¼
15 miles and under	10	4	"	04	2½	4½	4½	4¼
20 " " "	15	4	"	04½	2½	4½	4½	4½
25 " " "	20	4½	"	05	2¾	5	5½	4¾
30 " " "	25	4½	"	05¼	2¾	5	6	"
35 " " "	30	5	125	05½	"	5¼	6½	5
40 " " "	35	5	125	05¾	3¼	5¼	7	5
45 " " "	40	5½	125	06	"	5½	7½	5
50 " " "	45	5½	125	06¼	3½	5½	8	5
55 " " "	50	6	150	"	3¾	5¾	8½	5
60 " " "	55	6	150	06½		5¾	9	5
65 " " "	60	7	150	"	4¾	6	9½	5
70 " " "	65	7	150	06¾		6	10	5
75 " " "	70	7	165	"	4¾		10½	5
80 " " "	75	7	"	07	4¾	6¼	11	5
85 " " "	80	8	"	07	5		11½	5
90 " " "	85	8	"	07	5	6½	12	5
95 " " "	90	8	"	07¼	5½		12½	5
100 " " "	95	8	"	07¼	5½	6¾	13	5
125 " " "	100	10	175	08	6½	7½	13½	7
150 " " "	125	11	"	08½	7¼	8	14	7
175 " " "	150	12	"	09½	8¼	8¾		7
200 " " "	175	13	"	10	9	9¼		
250 " " "	200		180	11	10½	10½		
300 " " "	250		185	13		11¾		
350 " " "	300	*	190					
400 " " "	350		195					
500 " " "	400		205					

* Rates between Meridian and points on this road.

VALUATION.

In valuing the ingredients of fertilizers regard must be had to their relative cost in the market. In the East and near the centers of commerce this is not difficult to do, but in a State as large as Mississippi, with hundreds of miles of freight transportation to pay, with fluctuating markets and changing freight rates, it is no easy matter to determine upon a fair valuation. What is a fair valuation at Meridian or Jackson is not fair at Crystal Springs, Kosciusko or Bay St. Louis. It has, therefore, been my effort to arrive at as nearly as possible what may be considered a maximum valuation for any railroad point in the State. I know perfectly well that during the present season fertilizers at many points could be bought for cash at prices less than those given below, but I have endeavored to give the extreme limit beyond which it would not be advisable for the farmers to go. Good brands could be bought for this price or less, and where more was demanded it would be advisable for the farmers to invite other dealers to enter the market. By taking car-load lots, as may be arranged for by "Farmers Alliances" at the various centers of distribution, the fertilizers may be secured at perhaps as much as thirty per cent. less than the prices indicated here.

The valuation of the fertilizer is based upon its chemical composition. The manufacturer buys his crude material upon a guaranteed analysis, and from this he produces a brand of fertilizer which he guarantees to have a certain definite composition. There should be no guess work about it. In making the fertilizers the manufacturers use definite and actual weights of the crude material, and they know as exactly what they have in their fertilizers, or should know, as exactly as the most careful merchant knows what he has in stock. The farmer need not expect to get a good fertilizer *cheap*, any more than he may expect to get first class sugar cheap. The genuine article costs just about so much money, and if the price be cut below the market value of its components. it is done either at the expense of the quality of the fertilizer, or at the expense of the manufacturer—most likely the former. The farmer, therefore, who requires a low priced fertilizer, should see to it that he gets the grade of goods guaranteed.

The analysis furnished by the manufacturer gives the composition of the brand of fertilizer usually in the following form, or slightly modified to suit their ideas of the best way of stating it. The Phosphoric Acid is generally stated in three or four forms, the Nitrogen in one form, and its equivolent in Ammonia sometimes given, and the Potash is stated in one form, the moisture and valuation per ton also being given.

The chemical nature of Phosphoric Acid is such that it appears in the fertilizer in three forms, i. e.

The *Soluble Phosphoric Acid*, which is soluble in water, and is ready for assimilation by the plant.

The *Citrate Soluble, or Reverted Phosphoric Acid*, which is not soluble in water, but is soluble in Citrate of Ammomium, and is thought to be rendered soluble by the acids of the soil, and hence may become available to the plant during the season.

The *Insoluble or Acid Soluble Phosphoric Acid*, is soluble in strong acids, and is considered insoluble in the soil, or to become available only in the distant future.

In the valuation of a fertilizer it is customary for the chemist to take the sum of the percentages of the first and second forms and call that the *Available Phosphoric Acid*, meaning by it that chemical analysis shows that the fertilizer contains that amount of Phosphoric Acid which may become available for plant growth during the season that it is applied to the soil.

The Nitrogen of the fertilizer may exist in it in a variety of forms or combinations, but is determined by the chemist simply as Nitrogen or as Ammonia, some preferring one form of statement, and some the other. I usually give the composition in both forms.

The Potash is nearly always given simply as the Oxide of Potassium.

These three elements of plant food, *Phosphoric Acid, Nitrogen* and *Potash, are considered as the elements of value in the fertilizer*, and are the only ones to which we assign any value.

It is true that all superphosphates contain besides these a quantity of "land plaster," and other ingredients which make up the bulk of the fertilizer, some or most of which, under certain conditions, may prove of value to the land But they are neglected in the valuation of the fertilizer. It is the constant effort of the chemist and manufacturer to concentrate as much plant food as possible into the smallest possible bulk, and these commercial fertilizers represent the climax of chemical knowledge attained, so far as this department of agricultural progress is concerned.

I have estimated for 1886–7 Available Phosphoric Acid at 10 cents per pound, Nitrogen at 20 cents per pound, Potash at 6 cents per pound.

The application of this is very simple. The chemical composition of a fertilizer is given in percentage. The percentage multiplied by 20 gives the number of pounds of the ingredient in the ton, and this, by the price per pound, gives the value of this ingredient in the ton of fertilizer. Find this value for each of the three ingredients valued, and take their sum as the value of the fertilizer per ton of 2000 pounds. I will illustrate this by an example. The first fertilizer in the table has the following composition and valuation:

	per cent.		cents.	
Available Phosphoric Acid....	10 58	x 20 x	10	= $21.16
Nitrogen....................	2.21	x 20 x	20	= 8.84
Potash.....	3.24	x 20 x	06	= 3 88
This fertilizer, then, is worth per ton				$33.88

In cases where only one of these ingredients is taken into consideration, as in an Acid Phosphate, of course the other ingredients are neglected.

There are very few manufacturers that have as exact a knowledge of what they use and what they produce as our fertilizer manufacturers do, and if our farmers do not get what they pay for it is their own fault, in allowing the law to be so lax as to permit imposition upon them. The trade can be perfectly controlled and every farmer almost absolutely secured from fraud. If our present law does not protect them, it is not the fault of the chemist. His duties are prescribed very precisely in the law, and have been faithfully executed. The majority of manufacturers selling in this State are, without doubt, doing an honest business, but one bad concern may damage the trade in localities where its swindles become known for ten year, so that it is to the interrof of the trade, as well as to the farmers, to have all doubl testu suspicious brands carefully watched.

TABLE.

Giving the names of the manufacturers of, or the general agents for the respective brands of fertilizers sold in Mississippi during the season 1886–7. The numbers in this table correspond to those in the next table, which gives the analysis and valuation:

1. A. A. Green, Jackson, Miss., "Royal C. Brand."
2. Meridian Fertilizer Factory, Meridian, Miss., "Standard Home Mixture Guano."
3. Columbus Oil Mills, Columbus, Miss., "Standard."
4. Nonpariel Fertilizer Co., Jackson, Miss., "Nonpariel."
5. Baldwin & Co., Savanah, Ga., "Georgia State Grange Fertilizer."
6. Memphis Fertilizer Co., Memphis, Tenn., "Memphis Fertilizer."
7. John Merryman & Co., Baltimore, Md., "Ammoniated Dissolved Bone."
8. The Raisin Fertilizer Co., Baltimore, Md., "Mobile Standard Guano."
9. Michigan Carbon Works, Detroit, Mich., "Homestead Guano."
10. John M. Green, Attanta, Ga., "Eddystone Soluble Guano."
11. Lister's Agricultural Chemical Works, Newark, N. J., "Lister's Standard Phosphate."
12. N. W. Fertilizing Co., Union Stock Yards, Chicago. "National Bone Dust."
13. Lister's Agricultural Chemical Works, Newark, N. J., "Harvest Queen."
14. Davis, Marshall & Co., Mobile, Ala., "Magnet Soluble Guano."

15. Adair Bros. & Co., Atlanta, Ga., "Buffalo Bone Guano."

16. Hammond, Hull & Co., Savannah, Ga., "Farmer's Ammoniated Dissolved Bone."

17. Hammond, Hull & Co., Savannah, Ga., "Oglethorpe Ammoniated Dissolved Bone."

18. Farmer's Fertilizer Co., Syracuse, N. Y., "Standard Cotton and Sugar Grower."

19. George W. Scott Manufacturing Co., Atlanta, Ga., "Gossypium Phosphate."

20. Bradley Fertilizer Co., Boston, "B. D. Sea Fowl Guano."

21. Robert B. Brown Oil Co., St. Louis, Mo., "Brown's Cotton and Corn."

22. National Fertilizer Co, Nashville, Tenn., "Tennesee Superphosphate."

23. The Raisin Fertilizer Co., Baltimore, Md., "Soluble Sea Island Guano."

24. Adair Bros. & Co., Atlanta, Ga., "Adair's Ammoniated Dissolved Bone."

25. The R. J. Ruth Co,, New York. "Good Luck Guano."

26. Walton & Whann Co., Wilmington, Del., "Plow Brand Raw Bone Superphosphate."

27. Texas Bat Guano Co., Bracken, Comal Co., Tex., "Texas Bat Guano Compost."

28. National Fertilizer Co., Nashville, Tenn., "Eagle Brand Rock City Superphosphate."

29. National Fertilizer Co., Nashville, Tenn., "Eagle Brand Vegetable Grower."

30. The Raisin Fertilizer Co., Baltimore, Md., "Empire Guano."

31. Pacific Guano Co., Woods Holl, Mass., "Soluble Pacific Guano."

32. Stern's Fertilizer and Chemical Manufacturing Co, New Orleans, La., "Ammoniated Raw Bone Superphosphate."

33. Planters Fertilizer Manufacturing Co., New Orleans, La., "Planters Cotton Fertilizer."

34. Meridian Phosphate Co., Meridian, Miss., "Ammoniated Raw Bone Phosphate."

35. Hammond, Hull & Co., Savannah, Ga., "Port Royal Cotton Fertilizer."

36. N. W. Fertilizing Co., Union Stock Yards, Chicago, "Horse Shoe Brand Ammoniated Dissolved Bone."

37. N. W. Fertilizing Co., Union Stock Yards, Chicago, "Atkinson's Pelican Cotton and Corn Grower."

38. N. W. Fertilizing Co., Union Stock Yards, Chicago, "Knickerbocker Dissolved Bone."

39. Meridian Fertilizer Factory, Meridian, Miss., "Dissolved Bone and Potash."

40. National Fertilizer Co, Nashville, Tenn., "Eagle Brand Acid Phosphate."

41. C. N. H. Holmes, Montgomery, Ala., "English Acid Phosphate."

42. Hammond, Hull & Co., Savannah, Ga., "Port Royal Acid Phosphate."

43. John Merryman & Co., Baltimore, Md., "High Grade Acid Phosphate."

44. Bradley Fertilizer Co., Boston, "Palmetto Acid Phosphate."

45. Pacific Guano Co., Charleston, S. C., "Dissolved Bone Phosphate of Lime."

46. Clarkes Cove Guano Co., New Bedford, Mass., "Sunny South Acid Phosphate."

47. Sterns Fertilizer and Chemical Manufacturing Co., New Orleans, La., "Acid Phosphate,"

48. Columbus Oil Mills, Columbus, Miss., "Phosphate."

49. Hammond, Hull & Co., Savannah, Ga., "Oglethorpe Dis. Bone Phosphate"

50. Sterns Fertilizer and Chemical Manufacturing Co, New Orleans, La., "Ground Raw Bone."

51. Sterns Fertilizer and Chemical Manufacturing Co., New Orleans, La., "Kainite."

TABLE,

Showing the Comparative Analysis and Valuation of the Fertilizers Sold in the State. as Represented by Samples sent to the State Chemist by the Manufacturers or their Agents, for Season 1886-7:

NAME OF BRAND.	Sol'ble Phosphate Acid.	Citrate Soluble Phos. Acid	Insoluble Ph'sp'te Acid.	Available Phos. Acid.	Nitrogen.	Potash.	Relative value per Ton.
	pr ct	pr	pr ct	pr. ct.	p ct.	pr. ct.	$ cts.
1 Royal C. Brand...	6 56	4.02	0.86	10.58	2.21	3.24	33.88
2 Stan'rd Home Mixture Guano.....	8,53	1.65	2.02	10 17	2.90	3.61	36.27
3 "Standard"..... ...	6.74	1.34	0.82	8.08	2.52	2.38	29.09
4 "Nonpariel".....	7.06	0.85	0.33	7.91	3.49	3.34	33.76
5 Ga. State Grange	6.74	1.33	1.82	8.07	2.78	1.95	29.60
6 Memphis Fertilizer	6.43	1.27	2.99	7.70	1.71	3.28	26.17
7 Merrynian's Am'd disolved bone	7.76	1.05	4.16	8.81	3.34	2.62	34.12
8 Mobile Standard....	3.08	5.65	2.63	8.73	2.69	1.97	31.58
9 Homestead Guano	9.77	1.16	0.61	10.93	3.25	not clam'd	34.86
10 Eddystone Soluble Guano..........	5.23	2.05	2.97	7.28	2.49	1.47	26.28
11 Lister's Standard	8.09	3.09	1.97	11.18	2.86	1.98	36.17
12 National Bone Dust	6.86	3.50	3.84	10.36	2.66	1.10	32.59
13 Harvest Queen....	8.80	2.78	1.69	11.58	2.17	0.70	32.68
14 Magnet Sol. Guano	4.00	3.68	0.46	7.68	2.73	2.28	30.01
15 Buffalo Bone Guano	7.00	1.66	1.32	8.66	2.41	2.00	29.36
16 Farmer's Amd. Dissolved Bone......	8.75	1.68	1.28	10.42	1.85	1.46	29.99
17 Oglethrope Amd. Dissolved Bone... Standard.	9.61	0.56	1.74	10.17	1·90	2.87	31.38
18 Cotton and Sugar Grower..........	6,80	2.83	0.76	9.63	2.35	1.65	30.64
19 Gossypum Phos'te	6.52	2.01	2.26	8.53	2.66	1.30	29.26
20 B. D. Sea Fowl Guano..........	8.75	2.13	2.95	10.88	2.46	1.67	33.40
21 Brown's Cotton and Corn Fertilizer........	1121	0.50	0.72	11.71	2.41	3.65	37,44

TABLE—(CONTINUED.)

Showing the Comparative Analysis and Valuation of the Fertilizers sold in the State, as represented by Samples sent to the State Chemist by Manufacturers or their Agents. for Season 1886–7.

NAME OF BRAND.	Sol'ble Phosphate Acid.	Citrate Soluble Phos. Acid.	Insoluble Ph'sp'tc Acid.	Available Phos Acid.	Nitrogen.	Potash.	Relative value per Ton.
22 Tennessee Superphosphate.......	8.14	1.83	2.21	9.97	2.97	1.87	34.06
23 Soluble Sea Island Guano	4.91	4.92	2.68	9.83	2.32	3.79	33.48
Adair's 24 Amd. Dis. Bone..	8.00	1.36	0.54	9.36	2,66	not clam'd	29.36
25 Good Luck Guano	8.17	4.17	0.92	12.34	3.42	1.65	40.34
26 Plow Brand.......	7.58	2.04	3.16	9.62	3.04	1.57	33.28
27 Texas Bat. Guano	0.88	7.09	9.41	8.96	4.14	0.75	33.26
28 Rock City Super. phosphate.	8.65	1.61	1.54	10 26	2.86	2.69	35.78
29 Vegetable Grower	6.29	0.69	2.84	6.98	4.11	4.71	35.95
30 Empire Guano ...	4.87	4.09	2.51	8.96	2.75	2.06	31.39
31 Soluble Pacific Guano	6.13	3.67	3.39	9.80	2.45	1.99	31.78
Stern's, 32 Amd. Raw Bone Superphosphate..	1003	2.81	0.42	12.84	2.86	2.90	40.60
33 Pla't'rs Cotton Fertilizer	6.20	0.40	0.38	6.60	2.80	2.83	27.79
Ammeniated. 34 Raw Bone Phosphate.............	1.01	1.69	1.19	2.70	3.43	4.06	24.23
Port Royal. 35 Cotton Fertilizer..	9.61	0.03	1.93	9.64	2.22	2.12	30.70
Horse Shoe Brand. 36 Amd. Dis. Bone...	7.59	2.40	4.89	9.99	2.99	2.15	34.53
37 Atleinson's Pelican Guano	7.51	2.76	4.61	10.27	2.92	2.26	35.11
Knickerbocker. 38 Dissolved Bone..	7.55	2.58	4.76	10.13	3.06	2.04	34.94

ACID PHOSPHATES, WITH AND WITHOUT POTASH.

NAME OF BRAND.	Sol'ble Phosphate Acid.	Citrate Soluble Phos. Acid.	Insoluble Ph'sp'tc Acid.	Available Phos Acid.	Nitrogen.	Potash.	Relative value per Ton.
39 Dissolved Bone and Potash..........	8.78	1.96	1 23	10.74		3.29	25.42
Eagle Brand.							

TABLE—(CONTINUED.)

Showing the Comparative Analysis and Valuation of the Fertilizers Sold in the State, as Represented by Samples sent to the State Chemist by the Manufacturers or their Agents, Session 1886–7

ACID PHOSPHATES, WITH AND WITHOUT POTASH.

NAME OF BRAND.	Sol'ble Phosphate Acid.	Citrate Soluble Phos. Acid.	Insoluble Ph'sp'te Acid.	Available Phos. Acid.	Nitrogen.	Potash.	Relative value per Ton.
40 Acid Phosptate.. . English.	12.87	1.63	0.95	14.50			29.00
41 Acid Phosphate... Port Royal.	12.23	1.01	0.37	13.24			26.48
42 Acid Phosphate ... High Grade.	11.06	2.21	1.51	13.27			26.54
43 Acid Phosphate ... Palmerto.	13.99	0.54	0.45	14.53			29.66
44 Acid Phosphate .. Dissolved Bone.	11.62	0.84	4.35	12.46			24.92
45 Phosphate of Lime Sunny South.	9.83	1.97	5.23	11.80			23.60
46 Acid Phosphate.. Sternes.	12.07	0.61	0.47	1.268			25.36
47 Acid Phosphate ..	14.58	0.64	0.24	15.22			30.44
48 Phosphate .... Oglethrope.	14.04	1.11	2.57	15.15			30.30
49 Dis. Bone Phosphate.	12.39	0.78	2.81	13.17			26.34
50 Stern's Gr'd Bone				25.02	4.91		34.83
51 Stern's Kanite...						11.15	13.38

The provisions by law under which the farmers send in samples of fertilizers for analysis appears to be quite generally misunderstood or ignored by them. Not noticing its requirements, they frequently send in samples without taking any of the precautions indicated by it, about drawing the fair sample required by the law, and in some cases may have complained that they were not analyzed. If they fail to take proper precautions in securing samples as required by the law, they can scarcely justly find fault with the chemist for declining to be responsible for their negligence, and refusing to make the analysis. The law is quite explicit in its terms as to how samples shall be drawn, and neither the farmers nor the chemist have the right to expect or to carry out analysis under any other conditions. They were made for the purpose, no doubt, of protecting the manufacturers from the possibility of dishonest farmers securing an analysis of an imperfect or unfair sample of any Fertalizer, and upon this subjecting them to loss and annoyance, without just grounds. It is simple justice that manufacturers should be protected as well as purchasers, and the law should not be curtailed in favor of either class

Every sample sent in by the farmers with any tangible evidence that it was taken under the provisions of the Act, has been analyzed as promptly as possible. Parties sending in samples under other conditions, have in all cases been notified as to the requirements of the law, and where they have considered the matter of sufficient interest to themselves to comply therewith, their samples have in all cases been analyzed. If on the other hand, it has not been deemed necessary upon their part to comply with the law their samples have received no further attention. The duties of the State Chemist are defined in the Act, and the public should not expect him to assume responsibilities outside of those prescribed. In all cases the Chemist knows nothing of the samples except so far as the certificate which is required to accompany it makes it evident that it was fairly drawn. He has absolutely nothing to do with the taking of the sample, and can be held responsible only for the analysis of the samples as presented for analysis according to the provisions of the Act.

There is no provision in the Act by which all kinds of analytical work can be thrown upon him as as some appear to imagine, and have even been free enough in a few instances to assail him in the newspapers for not meeting all of their demands upon him, in the form of analysis of iron ores, waters, minerals, soils, poison cases, diseased or filthy milk, adulterated butter, sugar, molasses, paints, and drugs.

The persistency with which these demands were made upon me, constrained me to issue the following circular letter, which has been sufficient in most cases to satisfy the parties sending in the specimens for analysis:

"NOTICE."

"All persons sending specimens to the State Chemist for analysis, should remember that the Legislature has made no provisions for any free analyses except of Fertalizers under prescribed regulations. No money has been appropriated to pay the expenses of such analyses, and there is no provisions of any kind for covering such expenses except for Fertilizers.

"The Board of Trustees of this institution has directed That the Farm, Horticultural and Chemical Departments, from this time, be thrown entirely on their own resources for wants and needs of their Departments." The only resources of the Chemical Department for covering its expenses are derived from the fees for analyses and from fees paid by the students for chemicals consumed by them.

"It must be evident, therefore, to all, that it is not within the power of the State Chemist to meet the expenses of these analysis beyond what the law requires, and all parties wishing to have analyses made by him must expect to pay reasonable charges for the work, otherwise it can not be done."

During the excitement last year over the discoveries of iron ore in the State, a very large demand was made upon me which, to a considerable extent I was unable to meet, owing to lack of proper provisions by the State for covering the expense of such work. If there is sufficient interest in such investigations and enough public enterprise to carry them on, there should be sufficient to provide facilities for it without imposing upon private property. Many portions of the State are, perhaps, not directly interested in such investigations, and the necessary provisions might be made if a general law were enacted placing it within the power of County Officers to make such arrangements for their respective counties as necessity or local interests required. Such investigations could not fail to add much to our knowledge of the resources of the State, which I am convinced is much richer in minerals than has generally been believed. The mineral resources of the State are certainly small compared with our neighbor upon the East, but were those not there, the mineral resources of Mississippi would attract much more attention than they now do. More careful investigations might lead to a better utilization of what we have, and cause new industries to spring up, which could not fail to materially increase the value of property in the State.

The investigations of Prof. Johnson, of the U. S. Geological Survey, as well as of others, have shown a number of places in the State where it is probable profitable enterprises of this kind might be inaugurated. There are without doubt many others, and the time, it is to be hoped, is not far off when our people will better appreciate them. I attach herewith the analysis of some of the specimens that have been analyzed during the last year:

WINSTON COUNTY IRON ORES.

No. 1.—A scaly ore arising from the gradual conversion of Siderite into Limonite. A quality of ore that is quite abundant in the county though seen by me nowhere in large deposits. About an average specimen I should think.

Ferrous Oxide 0.32 per cent. Ferric Oxide 54.86 per cent.	Equivalent to 38.61 per cent metallic iron.
Insoluble matter and sand	21 62 per cent.
Sulphur (SO3)	0 28 per cent.
Phosphorous (P2O5)	0.17 per cent.
Votalile and Undetermined	22.75 per cent.
	100.00

No. 2.—Partially converted Siderite. Distinct evidences of its passing into Limonite. Quite common, and in considerable quantities, but no extensive deposits seen by me. An average specimen.

Ferrous Oxide 32.63 per cent. } Equivalent to 42.92 per cent.
Ferric Oxide 28.69 per cent. } metallic iron.

Insoluble matter and sand	8.90 per cent.
Sulphur (SO3)	0.29 per cent.
Phosphorous	0.00 per cent.
Volatile and Undetermined	29.49 per cent.
	100.00

No. 3.—Silicious Limonite, quite motled in appearance. Frequently much honey-combed or apparently leached out. Quite common on and in the neighborhood of Hon. Hamp. Turner's place.

Ferric Oxide, 55.54 per cent=38.88 per cent metallic iron.

Insoluble matter and sand	30.82 per cent.
Sulphur, (SO3)	0.51 per cent.
Phosphorus, (P 2O5)	0.05 per cent.
Volatile and undetermined	13.08 per cent.
	100.00

No. 4.—A very compact iron clay stone, occurring in strata of varying thickness, at Bevil's Hill and other places; also upper stratum upon Hull's Place.

Ferric Oxide, 53.44 per cent=37.40 per cent metallic iron.

Lime, (Ca 0)	1.68 per cent.
Magnesia (Mg 0)	1.14 per cent.
Insoluble matter and sand.	23.60 per cent.
Sulphur, (SO3)	0.62 per cent.
Phosphorus, (P 2O5)	0.27 per cent.
Volatile and undetermined	10.25 per cent.
	100.00

No. 5.—Ore similar to above in appearance and qualities, but a lower stratum appearing at Hull's Place and in the neighborhood. It contains a slight grit not in the above.

Ferric Oxide, 46.30 per cent=32 41 per cent metallic iron.

Sand and insoluble,	39.82 per cent.
Sulphur, (SO3)	0.41 per cent.
Phosphorus, (P2O5)	0.20 per cent.
Volatile and undertermined	13.27 per cent.
	100.00

Ores of similar quality occur at many places in Winston county, as Frazier's Mill, Bevil's Hill, Winston Shaw's place, etc., and are of a quality which by analysis, appear to be equal to those from which quite a large per centage of the iron in

Europe is made. The short time at my disposal did not permit me to examine very closely into the extent of the deposits. The locality was afterwards visited by Professor Johnson and myself, and he has traced the deposits somewhat irregularly over a considerable area, which will no doubt fully appear in his forthcoming report to the United States Geological Survey.

In Webster county undetermined quantities of similar ore extend towards the Duck Hill Region. I have had no means of determining the quality of the ore at the latter point, no specimens having been received by me for analysis. But the ore in Webster county appears to be of excellent quality so far as specimens have come into my hands, and is reported to be of considerable extent, though I have not seen that section of the State. The following analysis are of samples from that county:

No. 1.—From Leverett's place, Siderite passing into Limonite. Apparently good quality.

Ferrous Oxide, 2.19 per cent.	Metallic iron, 45.30 per cent.
Ferric Oxide, 62.45 per cent.	
Sand and insoluble	17.75 per cent.
Sulphur, (SO_3)	0.24 per cent.
Phosphorus, (PO_5)	0.11 per cent.
Volatile and undertermined	17.26 per cent.
	100.00

No. 2.—Siderite about half converted into Limonite. Said to be found in large quantities and easy of access upon Mr. Leverett's place. Specimens obtained by Messrs. Wiley Nash and McDowell, two enterprising citizens of Starkville, who were examining into the resources of that section of the State.

Ferrus Oxide, 20.52 per cent.	47.12 metallc iron.
Ferric Oxide, 45.95 per cent.	
Sand and Insoluble	6.60 per cent.
Sulphur, (SO_3)	0.04 per cent.
Phosphorus, P_2O_5)	0.36 per cent.
Volatile and undetermined	27.53 per cent.
	100.00

Ores of similar character have been presented to me by Prof. Johnson, coming from Noxubee and Kemper counties, and also from other counties, some of which have been analyzed, but most of them tested only for special ingredients in answer to his inquiries. The specimens however from the above two counties are of quite superior quality. His report will no doubt give the localities and extent. His work upon this subject is however only incidental to his other scientific work, and the drafts upon his time more than he should be expected to answer.

The specimens sent into me from Meridian are from private parties, and I am not sure as to how fairly they represent the character and quality of the ore in that region. I shall therefore not include my analyses of those ores in my report. But as the company owning the choice deposits in the neighborhood of that city and Enterprise have gone to the expense of having the ores tested practically as I am informed, the analyses perhaps are not of much interest.

Quite a number of specimens have come in from the neighborhood of Durant, but it was not deemed necessary to analyze them, as the information regarding the places from which they were obtained indicated that ore probably did not exist in sufficient quantity to require further attention.

Large numbers of specimens of iron ore have been received from the southern interior counties of the State, but few of them have been of sufficient interest to require analysis.

There appears to be a region somewhere not a great distance from Fayette, in Jefferson county, which it would justify some one to examine for sulphide of iron. From the quantities received, I am led to suggest that it may be found in sufficient quantities to justify the erection of sulphuric acid works. My information is meagre, and I have been unable by correspondence to get any exact knowledge as to the locality from which the specimens, which are very fine, come. There are also in the neighborhood of that place, fire clay beds which may in future find some application.

Concerning the northern part of the State I have more exact personal information. In company with Col. Wm. M. Inge, and other enterprising citizens of Corinth, I have made a number of rapid trips out of that city in several directions. In company with Col. Inge I made a section of about fifty miles across the counties of Alcorn, Tippah and Benton, examining into the ores of that p.rt of the State, also in the direction of and into Tishomingo county, finding more or less iron ore in all of these counties. I have seen more iron ore, perhaps, in Tippah county, than in any one visited, but unfortunately much of it is mixed and combined with the silica and sand which is so abundant, that it is doubtful whether it could be worked at a profit by any process at present known.

Quite a number of other minerals have required analysis. Notably fire clays of which there is a great variety and abundance in the State. Most of these have been sent in, however, by persons who refused or withheld all information concerning the localities from which the specimens were derived, and hence, I shall not give the analyses. The most promising specimen came from Meridian, and if the stratum from which it was derived were properly developed, it is my impression that it would prove quite profitable.

Among the analysis of waters. I will mention only two, one of which is from the water supply of the city of West Point, from the Artesian well in the public square, and the other from what was proposed to become the water supply of the city of Natchez, from St Catharine's creek, I believe it is called. Both waters are apparently pure so far as the eye and taste goes. The water from West Point is of most extraordinary purity, while the water from St. Catharine's creek is of most remarkable impurity. It is virtually ditchwater and should Natchez use this supply, its citizens may expect to be scourged with fever and enteric diseases. It is the most impure water ever analyzed here.

	West Point.	Natchez Creek.
Total Solids, grains per gal ...	9.12	25.262
Vol. and organic matter, per gal	1.22	2.016
Mineral matters	7.90	23.246
Hardness	2.15	0.4
Chlorine...........	.412	.027
Free ammonia.per million........	Trace.	2 parts.
Albumoid, ammonia per million	——	15 parts.
Microscopic examination	Pure.	Swarming with bacteria.
Opinion of water.............	Extremely pure.	Extremely dangerous.

Respectfully Submitted,
JOHN A. MYERS,
State Chemist.

LAWS OF CONGRESS RELATING TO THE COLLEGE.

AN ACT, donating public lands to the several States and Territories which may provide Colleges for the benefit of agriculture and the mechanic arts.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there be granted to the several States, for the purpose hereinafter mentioned, an amount of public land, to be apportioned to each State a quantity equal to thirty thousand acres for each Senator and Representative in Congress to which the States are respectively entitled by the appointment under the census of eighteen hundred and sixty. *Provided,* That no mineral lands shall be selected or purchased under the provisions of this Act.

SEC. 2. *And be it further enacted,* That the land aforesaid, after being surveyed, shall be apportioned to the several States in sections, or subdivisions of sections not less than one quarter of a section; and whenever there are public lands in a State subject to sale at private entry at one dollar and twenty-five cents per acre, the quantity to which said State shall be entitled shall be selected from such lands within the limits of such State; and the Secretary of the Interior is hereby directed to issue to each of the States in which there is not the quantity of public land subject to sale at private entry at one dollar and twenty-five cents per acre, to which said State may be entitled under the provisions of this Act, land scrip to the amount of acres for the deficiency of its distributive share; said scrip to be sold by said State, and the proceeds thereof applied to the uses and purposes prescribed in this Act, and for no other use or purpose whatever; *Provided,* That in no case shall any State to which land scrip may thus be issued be allowed to locate the same within the limits of any other State, or of any Territory of the United States, but their assignees may thus locate said land scrip upon any of the unappropriated lands of the United States subject to sale at private entry, at one dollar and twenty five cents or less per acre; *and provided further,* that not more than one million acres shall be located by such assignees in any one of the States; *and provided further,* that no such location shall be made before one year from the passage of this Act.

SEC. 3. *And be it further enacted,* That all the expenses of management, superintendence and taxes, from date of selection of said lands previous to their sales, and all expenses incurred in the management and disbursement of the moneys which may be received therefrom, shall be paid by the States, to which they may belong, out of the Treasury of said States, so that the entire proceeds of. the sale of said lands shall be applied without any diminution whatever to the purposes hereinafter mentioned.

SEC. 4. *And be it further enacted,* That all moneys derived from the sale of the lands aforesaid by the States to which the lands are apportioned, and from the sale of lands scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or of some other safe stocks, yielding not less than five per centum upon the par value of said stocks; and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided in fifth section of this Act), and the interest of which shall be inviolably appropriated by each State which may take and claim the benefit of this Act, to the endowment, support and maintenance of at least one College, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, and in such manner as the Legislatures of the States may prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

SEC. 5. *And be it further enacted,* That the grant of land and land scrip hereby authorized shall be made on the following conditions, to which as well as to the provisions hereinbefore contained, the previous assent of the several States shall be signified by legislative acts:

1. If any portion of the fund invested as provided by the fore going section, or any portion of the interest thereon, shall by any act or contingency be diminished or lost, it shall be replaced by the State to which it belongs, so that the capital of the fund shall re-

main forever undiminished; and the annual interest shall be regularly applied without diminution to the purposes mentioned in the fourth section of this Act, except that a sum not exceeding ten per centum upon the amount received by any State under the provisions of this Act may be expended for the purchase of lands for sites of experimental farms whenever authorized by the respective Legislatures of said States.

2. No portion of said fund, nor interest thereon, shall be applied directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings.

3. Any State which may take and claim the benefit of the provisions of this Act, shall provide within five years at least not less than one College, as described in the fourth section of this Act, or the grant to said State shall cease; and said State shall be bound to pay the United States the amount received of any lands previously sold, and the title to purchasers under the State shall be valid.

4. An annual report shall be made regarding the progress of each College, recording any improvements and experiments made, with their costs and results, and such other matters, including State and industrial statistics, as may be supposed useful; one copy of which shall be transmitted by mail free by each to all the other Colleges which may be endowed under the provisions of this Act, and also one copy to the Secretary of the Interior.

5. When lands shall be selected from those which have been raised to double the minimum price, in consequence of railroad grants, they shall be computed to the States at the maximum price, and the number of acres proportionally diminished.

6. No State, while in a condition of rebellion or insurrection against the Government of the United States, shall be entitled to the benefit of this Act.

7. No State shall be entitled to the benefit of this Act unless it shall express the acceptance thereof by the Legislature within two years from the date of its approval by the President.

SEC. 6. And be it further enacted, That land scrip issued under the provisions of this Act shall not be subject to location until after the first day of January, one thousand eight hundred and sixty-three.

SEC. 7. And be it further enacted, That the land officers shall receive the same fees for locating land scrip issued under the provisions of this Act as are now allowed for the location of military bounty land warrants under existing laws; *Provided*, That maximum compensation shall not be thereby increased.

SEC. 8. And be it further enacted, That the Governors of the several States to which scrip shall be issued under this Act shall be required to report annually to Congress all sales made of such scrip until the whole shall be disposed of, the amount received for the same, and what appropriation has been made of the proceeds.

Approved, July 2, 1865.

LAWS OF THE STATE RELATING TO THE COLLEGE.

AN ACT to establish and organize Agricultural and Mechanical Colleges, and to regulate the government of same.

WHEREAS, Section 8 of Article VIII of the Constitution provides that the Legislature shall, as soon as practicable, provide for the establishment of an Agricultural College or Colleges, and shall appropriate the two hundred and ten thousand acres of land donated to the State for the support of such a College by the Act of Congress, passed July 2, A. D. 1865, or the money or scrip, as the case may be, arising from the sale of said lands, or any lands which may hereafter be granted or appropriated for such purposes; and

WHEREAS, The State having accepted said lands and pledged its faith to appropriate the same to the endowment of said institutions of learning; therefore,

SECTION 1. Be it enacted by the Legislature of the State of Mississippi, That the institution known as the Alcorn University is hereby established as, and declared to be, an Agricultural College, for the education of the colored youth of the State, and to be hereafter known as the Alcorn Agricultural and Mechanical College of the State of Mississippi.

SEC. 2. Be it further enacted, That an Agricultural College is hereby established for the education of the white youth of the State of Mississippi, and shall be known as the Agricultural and Mechanical College of the State of Mississippi, and shall be located and organized as hereinafter provided.

SEC. 3. Be it further enacted, That the Governor of the State shall nominate and appoint, by and with the advice and consent of the Senate, nine persons for each of said Colleges to be Trustees, to serve six years, one for each of said Colleges, to be chosen from each Congressional District, and the remainder from the State at large; five of each Board of Trustees shall be chosen from practical agriculturists or mechanics, or selected from both, as may be deemed advisable. Immediately after they shall be assembled, in consequence of their first appointment, they shall be divided equally into three classes. The term of the first class shall expire two years from the date of their appointment,, and the second class four years from the date of their appointment, and the third class at the expiration of six years, so that one third may be chosen every second year; and if vacancies happen by resignation or otherwise, the Governor may make temporary appointments until the next meeting of the Legislature. The Governor shall be *ex-officio* a member of each of said Boards of Trustees, and shall act as President thereof in all of their meetings when present, but in his absence they may choose a President *pro tem.* Five of the Trustees of each Board shall be a quorum for the transaction of business.

SEC. 4. Be it further enacted, That the Secretary of State shall furnish a certificate to each Trustee within ten days after his appointment, notifying him that he has been so appointed; and if any Trustee fail for the space of thirty days to inform the Governor of his acceptance, then his appointment shall be void, and his place filled as heretofore provided in cases of vacancy.

SEC. 5. Be it further enacted, That each of the Boards of Trustees herein provided for, and their successors in office, be and the same are hereby declared to be a body politic and corporate by their respective names and styles, and shall have a common seal, and each in his own name shall sue and be sued, contract and be contracted with, and may own, purchase, sell and convey property, both real, personal and mixed.

SEC. 6. Be it further enacted, That the Governor shall, as *ex-officio* President, convene the Board of Trustees of either of said Colleges, to consider any business connected with the same, whenever he shall deem it expedient to do so.

SEC. 7. Be it further enacted, That the Trustees of each College shall elect a Secretary of the Board, whose duty it shall be to record in a well-bound book all the proceedings had by said Board. and shall be allowed such compensation for his services as the Board may deem proper.

SEC. 8. Be it further enacted, That the State Treasurer shall be *ex-officio* Treasurer of both Boards of Trustees, whose duty it shall be to secure and safely keep all moneys belonging to the Agricultural and Mechanical Colleges, and to disburse the same under the orders of the Board of Trustees.

SEC. 9. Be it further enacted, That each of said Boards of Trustees shall possess all the power that is necessary and proper for the accomplishment of the trust reposed in them, viz: the establishment and maintenance of a first-class institution, at which the youth of the State of Mississippi may acquire a common school education, and a scientific and practical knowledge of agriculture, horticulture and the mechanical arts; also of the proper growth and care of stock, without, however, excluding other scientific and classical studies, including military tactics. They may also adopt all such by-laws and regulations as they may deem necessary for that purpose, not repugnant to the Constitution and laws of this State or of the United States.

SEC. 10. Be it further enacted, That the Board of Trustees shall appoint the President and Professors of the College, and such other officers as they may think proper to put the College into successful operation, and shall make such laws, rules, and regulations for the government of said officers as they may deem advisable. They shall regulate the course of study, rates of tuition, management of the experimental farm, the manner of performing labor and the kind of labor to be performed by the students, together with the course of discipline necessary to enforce the faithful discharge of the duties of all officers, professors and students.

SEC. 11. Be it further enacted. That the Trustees to be appointed as hereinbefore provided, shall receive as compensation for their services their actual expenses incurred in attending any of the meetings of the Board of Trustees, payable out of any funds belonging to the College.

SEC. 12. Be it further enacted, That the said Board of Trustees shall organize under the provisions of this Act as soon as practicable after their appointment, and the Trustees of the Agricultural and Mechanical College of the State of Mississippi shall, immediately after their organization, proceed to procure, by purchase or donation, a site for the location of the said Agricultural and Mechanical College, with an experimental farm thereto attached of not less than one hundred and sixty acres of land. In the selection of the said site and experimental farm, the Trustees shall look to the convenience of the people of every section ef the State, the proximity of the proposed site to other public institutions supported in whole or in part by the State, with a view to giving the preference to localities least favored heretofore, and also the facilities for going to and from said College, the advantages and disadvantages of the different sites proposed, and shall locate the same at the place where most advantages are offered; *Provided*, The location shall be at a place known to be healthy; *and Provided*, That said Trustees shall give notice for sixty days in three newspapers published in this State, that they will receive proposals and examine sites before locating said College.

SEC. 13. Be it further enacted, That the interest arising from the proceeds of the fund known as the agricultural land scrip fund is hereby set apart for the use and benefit of said Agricultural and Mechanical College, to be used in equal proportions for the benefit of the youth of both races and Colleges, and shall be drawn from the Treasury by the Board of Trustees on vouchers audited by the Board and approved by the Governor, and filed in the Auditor's office, and upon the filing of such vouchers the Auditor of Public Accounts shall draw his warrant on the State Treasurer for the same from time to time, as funds may be needed to pay the officers and professors of said Colleges, or for any other necessary and proper object connected with the said Agricultural and Mechanical College not inconsistent with the Act of Congress, approved July 2, 1862.

SEC. 14. Be it further enacted, That in order to establish financial equality in all respects between the Colleges herein provided for, a sum equal to the amount heretofore appropriated to the Alcorn University out of the principal arising from the sale of said land scrip, is hereby appropriated to the College provided for in section two of this Act, and the Trustees thereof shall be authorized to use the same in carrying out the provisions of this Act for the benefit of said College not inconsistent with the Act or Acts of Congress donating the same.

SEC. 15. Be it further enacted, That this Act take effect and be in force from and after its passage.

Approved, Feb. 28, 1878.